A university is . . . an *alma mater*,
knowing her children one by one,
not a foundry, or a mint, or a treadmill.
--John Henry Newman

The task of a university is the creation
of the future, so far as rationale thought
and civilized modes of appreciation
can affect the issue.
--Alfred North Whitehead

[seal]

For sources of additional information,
turn to the inside back cover.

The University of Idaho has a policy of nondiscrimination on the basis of race, color, national origin, religion, sex, age, disability, or status as a Vietnam-era veteran. This policy applies to all programs, services, and facilities, and includes, but is not limited to, applications, admissions, access to programs and services, and employment. Such discrimination is prohibited by titles VI and VII of the Civil Rights Act of 1964, title IX of the Educational Amendments of 1972, sections 503 and 504 of the Rehabilitation Act of 1973, the Vietnam Era Veterans' Readjustment Assistance Act of 1974, the Age Discrimination Act of 1975, the Age Discrimination in Employment Act Amendments of 1978, the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, and other state and federal laws and regulations. Questions and concerns about the application of these laws and regulations may be directed to the affirmative action officer, Human Resource Services (885-3609), to the coordinator of student disability services, Office of the Dean of Students (885-6757), to the director, Seattle Regional Office, Office for Civil Rights, U.S. Department of Education, or to the director, Office of Federal Contract Compliance Programs, U.S. Department of Labor.

**University of Idaho**
**2002-2003 General Catalog**
Expiration date: Last day of the Spring 2009 semester

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# Academic Calendar for 2002-2003

**Dates in this calendar are subject to change without notice; dates appearing in admission and registration instructions take precedence over those listed below. See the "Engineering Outreach" section for dates related to that program.**

## SUMMER 2002

*Note:* See the Summer Session Catalog for additional dates and information.

Monday, May 20 .....Beginning of early 4-week Summer Session

Monday, May 27 .....Memorial Day – classes DO NOT meet

Monday, June 17 .....Beginning of second 4-week Summer Session

Thursday, July 4 .....Independence Day – classes DO NOT meet

Monday, July 15.....Beginning of third 4-week Summer Session

Friday, Aug. 23 .....Last day to submit final grades for Incompletes given in the prior Fall or Intersession terms

Close of Summer Session (5 p.m.)

Monday, Aug. 26 .....Last day to file acceptable theses, dissertations, abstracts, and results of comprehensive examinations for graduate degrees to be awarded in August

Summer grades due ( 5 p.m.)

## FALL SEMESTER 2002

*Note:* For application deadlines for new and former students, see Undergraduate and Graduate Admissions sections in Part 2 of the Catalog.

Monday, Aug. 26 .....Classes begin (7:30 a.m.)

Tuesday, Aug. 27 .....$50 late-registration service charge begins

Monday, Sept. 2 .....Labor Day – classes DO NOT meet

Tuesday, Sept. 3 .....Last day to add course or change course section on-line

Monday, Sept. 9 .....Last day to register with $50 service charge but without paying $50 late-registration fee

Last day to change from audit to regular credit without instructor permission

Last day to change from pass/fail to regular grading

Last day to turn in Course Level Adjustment forms to the College of Graduate Studies

Monday, Sept. 23 .....Last day to register with $50 service charge and $50 late-registration fee but without petition

Last day to avoid paying add-drop fee

Last day to drop a course without having a grade of 'W' recorded (the deadline for accelerated or short courses is when 12.5 percent of the class is completed)

Last day to change from regular credit to audit without having a grade of 'W' recorded

Last day to reduce the number of credits for which registered in a course

Last day to change from regular to pass/fail grading

Wednesday, Sept. 25.....Freshman early warning grades due

Monday, Oct. 14 .....Columbus Day – classes WILL meet even though Columbus Day is a holiday

Friday, Oct. 18 .....Last day for midterm examinations

Monday, Oct. 21 .....Midterm grades due (1:30 p.m.)

Monday, Oct. 28 .....Academic advising begins for Spring semester

Tuesday, Oct. 29 .....Last day to withdraw from a course or from the university (the deadline for accelerated or short courses is when less that than 60 percent of the class is completed)

Last day to change from regular credit to audit

Saturday, Nov. 9.....Registration for Spring courses begins

Monday, Nov. 11 .....Veterans' Day – classes WILL meet even though Veterans' Day is observed (students who wish to attend an observance are excused from 11 a.m. until 1 p.m.)

Friday, Nov. 22 .....Fall recess begins (5:30 p.m.)

Monday, Dec. 2.....Fall recess ends (7:30 a.m.)

Monday, Dec. 9.....Field-trip completion deadline (7:30 a.m.)

Mon-Fri, Dec. 9-13 .....No-examination week

Friday, Dec. 13.....Last day to report grades for challenged courses

Saturday, Dec. 14.....Commencement Day

Mon-Fri, Dec. 16-20 .....Final examinations

Friday, Dec. 20.....Last day to file graduation applications for degrees to be awarded in May without late service charge

Last day to submit final grades for Incompletes given in the prior Spring or Summer terms

Close of Fall semester (5:30 p.m.)

Monday, Dec. 23.....Last day to submit to the College of Graduate Studies theses, dissertations, and results of the non-thesis requirements for Fall graduate degrees

Fall semester grades due (5 p.m.)

## INTERSESSION 2002-2003

*Note:* Scheduled breaks for the observance of holidays vary by class.

Monday, Dec. 23.....Classes begin (7:30 a.m.)

Tuesday, Jan. 14.....Close of Intersession (5:30 p.m.)

Friday, Jan. 17.....Intersession grades due (5 p.m.)

## SPRING SEMESTER 2003

*Note:* For application deadlines for new and former students, see Undergraduate and Graduate Admissions sections in Part 2 of the Catalog.

Wednesday, Jan. 15.....Classes begin (7:30 a.m.)

Thursday, Jan. 16 .....$50 late-registration service charge begins

Monday, Jan. 20.....Martin Luther King-Idaho Human Rights Day – classes DO NOT meet

Thursday, Jan. 23 .....Last day to add course or change course section on-line

Wednesday, Jan. 29.....Last day to register with $50 service charge but without paying $50 late-registration fee

Last day to change from audit to regular credit without instructor permission

Last day to change from pass/fail to regular grading

Last day to turn in Course Level Adjustment forms to the College of Graduate Studies

Wednesday, Feb. 12 .....Last day to register with $50 service charge and $50 late-registration fee but without petition

Last day to avoid paying add-drop fee

Last day to drop a course without having a grade of 'W' recorded (the deadline for accelerated or short courses is when 12.5 percent of the class is completed)

Last day to change from regular credit to audit without having a grade of 'W' recorded

Last day to reduce the number of credits for which registered in a course

Last day to change from regular to pass/fail grading

Friday, Feb. 14 .....Freshman early warning grades due

Monday, Feb. 17 .....Presidents' Day – classes DO NOT meet

Friday, March 14.....Last day for midterm examinations

Spring recess begins (5:30 p.m.)

Monday, March 17.....Midterm grades due (1:30 p.m.)

Monday, March 24.....Spring recess ends (7:30 a.m.)

Tuesday, April 1.....Last day to withdraw from a course or from the university (the deadline for accelerated or short courses is when less that than 60 percent of the class is completed)

Last day to change from regular credit to audit

Monday, April 7.....Academic advising begins for Fall semester

Registration for Summer courses begins

Saturday, April 19.....Registration for Fall courses begins

Monday, May 5.....Field-trip completion deadline (7:30 a.m.)

Monday-Friday, May 5-9 .....No-examination week

Friday, May 9.....Last day to report grades for challenged courses

Monday-Friday, May 12-16 .....Final examinations

Friday, May 16.....Last day to file graduation applications for degrees to be awarded in August and December without late service charge

Close of Spring semester (5:30 p.m.)

Saturday, May 17 .....Commencement Day

Monday, May 19.....Last day to submit to the College of Graduate Studies theses, dissertations, and results of the non-thesis requirements for Spring graduate degrees

Spring semester grades due (4:30 p.m.)

# Regents and Administration

**(January 2002)**

## The Regents of the University of Idaho

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### COLLEGE OF GRADUATE STUDIES

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### COLLEGE OF LAW

John A. Miller, *J.D., Dean*

### UNDERGRADUATE COLLEGES*

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Engineering – David E. Thompson, *Ph.D., Dean*
Mines and Earth Resources – Earl H. Bennett, *Ph.D., Dean*
Natural Resources –, *Interim Dean*
Education – Jeanne S. Christiansen, *Ph.D., Interim Dean*
Business and Economics – Byron J. Dangerfield, *Ph.D., Dean*

Art and Architecture – Joseph R. Zeller, *M.F.A., Dean*

*Listed in the order of their founding.

# The University

The University of Idaho was created in 1889 by a statute of the 15th territorial legislature. Commonly known as the university charter, that act became part of the state constitution when Idaho was admitted to the Union in 1890.

The university is a publicly supported comprehensive land-grant institution with principal responsibility in Idaho for performing research and granting the Doctor of Philosophy degree. The liberal arts and sciences, offered through the College of Letters and Science, are the heart of the university's educational programs. The primary areas of statewide responsibility of the university are agriculture, architecture, engineering, forestry and wildlife, mining and metallurgy (including international programs in those areas), foreign languages, and law.

Additional university responsibilities include programs in business, economics, and education as well as the regional medical and veterinary medical education programs in which the state participates.

To assist with its statewide mission, the university maintains resident instruction centers in Coeur d'Alene, Boise, and Idaho Falls, extension offices in 42 of Idaho's 44 counties, research and extension centers in Sandpoint, Moscow, Parma, Caldwell, Kimberly, Aberdeen, Tetonia, and Dubois, and field stations at McCall, Clark Fork, Point Springs, and the Taylor Ranch in central Idaho. Through its international programs, the university extends its services to many other countries.

Over 18,000 students from all states and more than 90 foreign countries choose programs from a vast array of disciplines. Strong undergraduate programs are coupled with nationally recognized research and scholarly achievements. There are more than 750 faculty members in teaching and research, and 1,500 staff and professional personnel.

The University Library and the Law Library contain over 2 million items of books, bound periodicals, microforms, and U.S. government publications. These resources, together with the libraries at Washington State University (eight miles to the west), equal those of major metropolitan areas.

The Moscow campus and adjacent farms cover nearly 800 acres. Other university lands, including the nearby university farms and experimental forests, exceed 10,000 acres.

The university is proud of its friendly campus atmosphere and sense of community. For example, the tradition of "Hello Walk" leading to the Administration Building dates from the 1920s, when the university president greeted students and members of the faculty and staff with a warm hello and friendly smile on his way to work. The university has granted 84,705 degrees since its founding, including 2,141 to the 2000-2001 graduating class.

The feeling of camaraderie that pervades the campus extends to Moscow, the university's "hometown." It is a thriving community of 21,000 friendly people located in the northern part of the state about 90 miles southeast of Spokane, Washington.

Moscow is the gateway to a natural wonderland. The surrounding Palouse hills and the mountains and lakes of northern Idaho provide a scenic background for university facilities. Skiing, boating, and other outdoor recreation resources are available within easy driving distance. They include the Sawtooth and Hells Canyon national recreation areas, Frank Church River of No Return Wilderness, and scenic rivers such as the Snake, Clearwater, Salmon, Lochsa, and Selway.

The university is a member of the National Association of State Universities and Land-Grant Colleges and is accredited by the Northwest Association of Schools and Colleges. Additional approval or accreditation for specific programs has been granted by the following organizations: American Association of Collegiate Schools of Business, American Bar Association, American Chemical Society, American Dietetics Association, Association of American Law Schools, Accreditation Board for Engineering and Technology, Computer Science Accreditation Commission of the Computing Sciences Accreditation Board (bachelor's

degree in computer science), National Architectural Accrediting Board, American Society of Landscape Architects, National Association of Schools of Music, National Council for Accreditation of Teacher Education, Society of American Foresters, National Association of School Psychologists, the Council for the Accreditation of Counseling and Related Educational Programs, and the National Recreation and Park Association Council on Accreditation.

## Role and Mission

The Idaho State Board of Education has established the following role and mission for the University of Idaho:

The University of Idaho is a research II, land-grant institution committed to undergraduate and graduate-research education with extension services responsive to Idaho and the region's business and community needs. The university is also responsible for regional medical and veterinary medical education programs in which the state of Idaho participates.

The University of Idaho will formulate its academic plan and generate programs with primary emphasis on agriculture, forestry, mining and metallurgy, engineering, architecture, law, foreign languages, teacher preparation, and international programs related to the foregoing. The University of Idaho will give continuing emphasis in the areas of business and education and will maintain basic strengths in the liberal arts and sciences, which provide the core curriculum or general education portion of the curriculum.

The institution serves students, business and industry, the professions, and public sector groups throughout the state and region as well as diverse and special constituencies. The university also has specific responsibilities in research and extension programs related to its land-grant functions. The University of Idaho works in collaboration with other state and regional postsecondary institutions in serving these constituencies.

## Purpose, Functions, and Objectives of the University of Idaho

The highest aspiration of a university is to imbue the human mind with knowledge, tolerance, and vision, and to stimulate a lasting attitude of inquiry. The University of Idaho shares this aspiration with universities everywhere. The particular purpose, functions, and objectives of the university have been defined as follows:

**Purpose**. In the widest sense, the purpose of the University of Idaho, a publicly supported comprehensive land-grant institution, is to serve the people of the state and nation as a major center for the preservation, advancement, and transmission of knowledge. Deriving from this purpose are the functions to be performed and the objectives to be achieved through the interaction of the various components and publics of the university.

**Basic Functions and Objectives**. Since its founding, the functions of the university have been viewed as threefold--teaching, research, and service. The broad objectives relating to these functions are, respectively:

(1) To offer undergraduate and graduate academic programs of excellent quality in the liberal arts and sciences and in many professional disciplines so that qualified students may develop into responsible, thinking citizens, provided with a sound general education, prepared for a lifetime of learning, and equipped with the professional and technical skills needed by society.

(2) To add to knowledge through research, scholarship, and creative activities in both fundamental and applied fields, and to seek ways of applying that knowledge to the betterment and enrichment of humanity.

(3) To make readily available to all people of the state the results of research and the rich heritage of human culture embodied in the arts and sciences.

**Unique Functions of the University**. As a part of the coordinated system of higher education that encompasses the state universities and college and the public community colleges, the University of Idaho has historically had certain unique functions. Specifically, the university serves the state as:

(1) Its comprehensive land-grant institution, with primary statewide responsibility for instruction, research, extension, and public service in agriculture, architecture, engineering, forestry and wildlife, law, mining and metallurgy, and in designated areas in the arts and sciences, business, and education.

(2) The institution with principal responsibility for research, research-oriented graduate education, and the granting of the Ph.D. degree. As a concomitant of this responsibility, UI's faculty members conduct research as a clearly defined element of their professional duties.

(3) The institution responsible for the state's role as a partner in regional cooperative programs in medical and veterinary medical education.

(4) A center for professional education, operating accredited professional programs in architecture, chemistry, education, engineering, forestry, family and consumer sciences, law, music, and wildlife, fishery, and range sciences, and also offering comprehensive programs in the preparation of public-school teachers, administrators, and counselors.

## General Honorary Societies

The university has long possessed nationally recognized marks of excellence, including chapters of national honorary and scholarship societies in practically every specialized field and chapters of the following general honorary societies: Phi Beta Kappa (since 1926), Phi Kappa Phi (since 1960), Sigma Xi (since 1922), and Golden Key (since 1990).

**Phi Beta Kappa.** To qualify for nomination to Phi Beta Kappa, a candidate must have a major in the College of Letters and Science. They must have achieved a cumulative grade-point average of at least 3.50 and have fulfilled the following distribution requirements: humanities (7 semester credits); laboratory sciences and/or mathematics (11 semester credits); social sciences (7 semester credits); foreign language (completion of a single foreign language through the intermediate level, or the equivalent --16 semester credits or 4 high-school units in a single foreign language).

**Phi Kappa Phi.** To qualify for nomination by the local chapter of Phi Kappa Phi, a candidate must be (1) registered at UI for at least one year and (2) enrolled in the final period of his or her junior year and rank scholastically in the upper 5 percent of the class or a senior enrolled in a course of study leading to a baccalaureate degree and rank scholastically in the upper 10 percent of his or her class.

**Sigma Xi.** To qualify for nomination to associate membership in Sigma Xi, a student must have shown marked aptitude for research in some field of pure or applied science. An associate member must have shown noteworthy achievement as an original investigator in some field of pure or applied science to qualify for nomination to full membership.

**Golden Key National Honor Society**. To qualify for membership in Golden Key, a student must have junior or senior standing and must have a cumulative grade-point average that falls in the top 15 percent of the junior and senior classes. Transfer students who have completed at least 25 semester credits at the University of Idaho and meet the grade-point average requirements also qualify for membership.

## Libraries

The University Library and the Law Library hold over 2 million items. The libraries receive 10,700 serials and add over 100,000 items annually. There are subscriptions to 100 newspapers, including all Idaho

newspapers and representative papers from around the U.S. The library is a regional depository for U.S. and Idaho state government documents and U.S. patents, and is a designated Earth Science Information Center.

The library's collections emphasize the land-grant traditions of the basic sciences, agriculture, and the natural resources while maintaining supporting collections in the humanities and social sciences. The Special Collections and Archives Division is rich in collections of Pacific Northwest and Idaho state history, including books, photographs, and historical maps. The archives contain personal papers and records of families, politicians, educators, authors, and business records of lumber companies, mines, and railroads.

The library building was expanded and remodeled in 1993, resulting in essentially a new library facility. The library is air-conditioned and is open 8 a.m. to midnight daily during the school terms.

Library services are fully computerized, and the library has subscriptions to numerous automated indexes, services, and electronic journals and books. There are 180 public-access computers within the library, and all library computer resources are fully accessible in all campus computing labs and off-campus over the Internet 24/7.

There is a reciprocal use agreement between the UI Library and the Washington State University Libraries located in Pullman, eight miles away, giving students immediate access to the equivalent of library resources in many urban areas. The library cooperates with institutions throughout the Pacific Northwest. Overnight delivery services ensure rapid delivery of items held throughout the area.

The library operates a staffed photocopy service that will make black and white or color photocopies from library materials, as well as enlargements, reductions, and copies on special paper. Self-service machines located throughout the building accept coins, debit cards, or charges to university budgets.

## Galleries

The galleries serve the university, community, state, and region and are the principal facilities emphasizing the visual arts in northern Idaho. The University Gallery occupies the main floor of Ridenbaugh Hall on campus (corner of Blake Street and Campus Drive); it is open during the regular academic year. The Prichard Gallery is located at 414 South Main Street in downtown Moscow; it is open throughout the year. All gallery programs and exhibitions are open to the public and no admission is charged.

Through the galleries' rotation of exhibits, visitors may see examples of the full range of visual arts, including architecture, landscape architecture, interior design, and photography as well as the traditional art media. The objectives of these galleries are to provide opportunities for local, regional, and national artists and students to exhibit their work, and a means by which visitors' awareness and appreciation of the arts is heightened. The galleries also serve as an excellent teaching device. Ties between the university and local and regional communities are strengthened by the outreach efforts of the Prichard Gallery.

Exhibitions mounted each year traditionally include those by faculty members and undergraduate and graduate students from the College of Art and Architecture. Public receptions held in connection with some exhibitions, occasional musical performances presented at the galleries, and seminars with guest artists and lecturers are ways in which the gallery serves the university and the community.

The gallery facilities and programs are administered through the College of Art and Architecture.

## Information Technology Services (ITS)

ITS provides the university community with information technologies and support to complement its teaching, learning, research, telecommunications, and outreach activities, as well as serve administrative operations. The ITS main office is located in the UI Administration Building, Room 140, phone 208/885-6721. Some services provided by ITS include:

* Student Computer Labs – in over 20 locations on the Moscow campus with a mix of over 700 Pentium PCs and Macintosh computers. Some labs are open 23 hours a day.

* Wireless Laptop Checkout – available in the Idaho Commons and Library.

* Network and Systems – provides network and server-based services including: e-mail; Internet access; high-speed campus data network; wide-area network connecting university sites across Idaho; server-based personal and shared file space; print queues; wiring and fiber optics for data and voice networks; and student computer labs.

* Help Desk services – including technical assistance through telephone, e-mail, and walk-in support. The Help Desk can be visited at Admin. 133 or reached at 208/885-APAL (208/885-2725) or helpdesk@uidaho.edu.

* Technical support for the university's 20 media-enhanced classrooms and 8 compressed video classrooms.

* Printing and Design Media Services – providing graphic design and in-house printing for the university community.

* Copier Services – copy centers are located in the Idaho Commons and Student Union Building. They provide full service color and black and white copying and many related services.

* Telephone Services – providing dial tone service and support to the Moscow campus for students, faculty, and staff.

* Audio/Visual equipment check out and classroom support services.

* Photographic/Digital Imaging Services.

* Management Information Systems – which aids in the analysis, maintenance, and installation of purchased software for both academic and administrative clients.

* Video Production/Teleconferencing Services.

* Center for Teaching Innovation – multimedia training and assistance.

* Web Design and Assistance.

* Instructional Design Assistance.

The ITS web page can be found on the World Wide Web at http://www.uidaho.edu/its and provides detailed coverage of the functions and services of this unit.

## University of Idaho Press

The University of Idaho Press, founded in 1972, publishes scholarly and general books in the humanities, social sciences, and natural sciences. It serves the state, scholarly community, and university through a publishing program that exemplifies the academic standards of the faculty and the significance of university research for society as a whole.

The Press issues an annual book catalog and focuses on certain areas: history of Idaho and the northern Rockies, natural history of the flora and fauna of the region, Hemingway studies, mining history of the West, Native Americans of the West, literature of the region, and ecological literary criticism. The Press publishes the work of academic and professional authors. University of Idaho Press titles are sold throughout the West, across the country, and around the world.

# Research

Research is a primary function of the University of Idaho and is closely related to teaching for both students and faculty members, especially at the graduate level. Research and teaching are intimately associated and mutually complementary. Hence, most classroom teaching faculty members are also actively engaged in research.

## University Research Office

The University Research Office stimulates and supports research and creative activities at the university. While colleges, departments, and other units commonly develop and administer their own scholarly activities, the Research Office focuses on promoting research university wide and on providing assistance in writing multidisciplinary proposals and in obtaining research funds. This is accomplished by organizing and promoting research activities such as special grant programs and research awards; providing to individuals and departments information on grant opportunities from federal agencies, state and private sector groups and foundations; and processing and recording all grant and contract proposals to ensure that policies and procedures are recognized and followed. The Research Office strives to increase UI's research competitiveness by offering assistance to faculty, staff, and students.

The Research Council, the faculty's standing committee involved with the development and oversight of research policy, works closely with the vice president for research and graduate studies to resolve differences in interpretation and implementation of these policies. Additionally, the council acts as the peer review board in the university's internal competitive grants programs.

## Idaho Research Foundation

The Idaho Research Foundation, Inc. (IRF), is a private nonprofit corporation organized for the purpose of supporting research at the university. Its principal activity is licensing technologies resulting from academic research to the private sector. The IRF identifies and protects the intellectual property developed at the University of Idaho and transfers it to the private sector through licensing agreements in order to secure support for and further develop the university's academic, research, and service responsibilities. The IRF also disseminates scientific knowledge and technical information and encourages and assists researchers and inventors by providing the means by which their scientific discoveries may be patented, copyrighted, developed, and applied. The transfer of technology generated through UI research turns society's investment into new products and industrial processes, thus increasing Idaho's competitiveness as well as the nation's.

## Research Units

Research activities are many and varied, and are unique for each department and college. Certain administrative units provide an additional research function and emphasis that are, in many cases, related to the research program of the departments. Some of these units are:

**Aquaculture Research Institute**. The Aquaculture Research Institute (ARI), University Research Office, promotes, supports, directs, and coordinates aquaculture research activities at the University of Idaho and throughout the state. Through the institute, UI scientists from various disciplines conduct research in both commercial and conservation aquaculture sciences and technologies such as fish culture and production efficiency, fish breeding and genetics, fish nutrition and growth physiology, fish pathology and health, fish waste management and water quality assurance, aquaculture marketing and economics, and rehabilitation of endangered species. The ARI does not offer degrees. Rather, the ARI assists academic departments in the training of graduate-level students by providing an aquaculture emphasis within their degree programs.

**Bureau of Public Affairs Research.** The Bureau of Public Affairs Research, College of Letters and Science, prepares research studies and handbooks for state and local officials; it also conducts training for state and local government employees. The Idaho Election Report, a summary and analysis of state and federal elections, is published by the bureau every two years.

**Caine Veterinary Teaching Center.** The Caine Veterinary Teaching Center facility, Department of Animal and Veterinary Science, College of Agricultural and Life Sciences, is located at Caldwell, Idaho, and is staffed with scientists involved with research, extension, service, and instruction in the animal and veterinary science graduate program. It provides clinical training for WOI students in veterinary medicine and is also a satellite clinical laboratory specializing in the identification, study, and control of diseases of animals used for human food.

**Center for Applied Thermodynamic Studies**. The Center for Applied Thermodynamic Studies (CATS) was established at the College of Engineering in 1975. Since its inception, the primary focus of the research in CATS has been the development of standard reference quality thermodynamic property formulations for fluids of engineering interest. In addition to equation of state development, CATS research areas include the extended corresponding states methods and mathematical formulation development for transport properties of cryogenic fluids, refrigerants, and natural gases. In conjunction with this research, CATS also develops linear and nonlinear regression techniques and fluid properties database. Thermal energy systems research in the area of ground-coupled heat pumps is also part of the activity in the center.

CATS is an integral part of the research program of the College of Engineering. Graduate and undergraduate students in mechanical and chemical engineering are employed as research assistants in the work of the center. Many students have participated in theses and short-term projects as a part of their academic programs. Research at the center has also resulted in a significant strengthening of the undergraduate and graduate courses in engineering thermodynamics.

**Center for Business Development and Entrepreneurship.** The Center for Business Development and Entrepreneurship is a multi-faceted research and service arm of the College of Business and Economics emphasizing applied research and executive education. The center serves businesses and other organizations in Idaho, throughout the United States, and in other nations.

**Center for ETHICS* (Ethical Theory and Honor in Competition and Sport).** The Center for ETHICS*, Division of Health, Physical Education, Recreation and Dance, College of Education, believes in "teaching the tradition of competitive integrity to inspire leaders of character." The goal of the center is to improve moral development and character education through intervention, consultation, and leadership in advancing moral education.

**Center for Educational Research and Public Service.** The Center for Educational Research and Public Service was established to conduct research/evaluation, to facilitate research by College of Education faculty members and graduate students, and to be of assistance to local school districts and to other educational institutions. The center publishes a monthly newsletter providing information on grant opportunities (www.uidaho.edu/ed/cerps).

**Center for Hazardous Waste Remediation Research.** The mission of the Center for Hazardous Waste Remediation Research, University Research Office, is to develop technologies for hazardous waste cleanup and site remediation. Through the center, approximately 35 UI faculty from microbiology, molecular biology, biochemistry, chemical engineering, chemistry, geology, hydrology, metallurgy, plant science, and soil science direct research on the use of microbial and chemical technologies to remove toxic chemicals from industrial-process streams, soil, surface water, and groundwater. Center research is multidisciplinary, focusing on three broad areas: bioremediation, geochemical remediation, and characterization of hazardous waste sites. The center is a collaborative effort of two of the University's research institutes, the Environmental Research Institute (ERI) and the Idaho Water Resources Research Institute (IWRRI).

**Center for Intelligent Systems Research.** The Center for Intelligent Systems Research (CISR) operates as a center in the Microelectronics Research and Communications Institute (MRCI), University Research Office. CISR does research, teaching, and outreach in the development of intelligent autonomous systems. These systems include, but are not limited to, self-propelled autonomous vehicles operating under on-board

intelligent computer control. Other computer-controlled electrical, mechanical, and chemical systems also fall under the purview of CISR. CISR provides a structure of collaboration among researchers, students, and industrialists concerned with the development of autonomous machines controlled by intelligent computers.

**Center for International Training and Outreach.** The Center for International Training and Outreach (CITO) functions as the College of Natural Resource's international outreach center. It's central long-term goal is the development of a self-sufficient program of worldwide training, technical assistance and research activities focused on three related substantive areas: (1) nature-based tourism, (2) environmental interpretation, and (3) protected area management and sustainable development. Key within CITO's functions is the cultivation of strategic linkages within organizations that can help facilitate a greater role for the UI and the College of Natural Resources in international training and outreach. Paramount in this vision is the establishment of strategic linkages and institutional partnerships with government, private firms, and international institutions of higher education.

**Center for Secure and Dependable Software.** The Center for Secure and Dependable Software, housed in the Department of Computer Science, College of Engineering, conducts research and instruction focused on the development of secure and dependable software systems. It serves as a focal point for collaborative research and education on engineering practices for the design, development, analysis, and use of technologies that result in secure and reliable computing systems.

**Center for Teaching Innovation.** The Center for Teaching Innovation (CTI), Academic Affairs, opened in Fall 1998 by Information Technology Services to help faculty and staff use technology more effectively. The CTI team assists with one-on-one instructional web site development, technology related grant consulting and support, PowerPoint presentations, research posters, image scanning, video captures, CD-ROM burning, and more. The CTI goal is to provide both high-end tools and high-level instruction for faculty and staff interested in using technology in teaching/learning and research. Current hardware and software available in the CTI lab includes high-end computers, CD-ROM writer, slide and flatbed scanners, digital video capture equipment, drawing tablets, Adobe PhotoShop, Microsoft FrontPage, Microsoft Office, and more, in addition to the assistance of qualified support staff.

**Electron Microscopy Center.** A campus-wide facility, including scanning and transmission electron microscopes and energy-dispersive x-ray microanalysis, is available for use in teaching, research, and service. Located in the Holm Research Center at the western edge of the campus, this facility is available to students and faculty members. Information concerning use of the EM Center may be secured directly from the facility or through the University Research Office.

**Environmental Research Institute.** The Environmental Research Institute (ERI), University Research Office, supports environmental and ecological research at the University of Idaho in areas such as microbial physiology and genetics, subsurface microbiology, ecosystem processes and dynamics, bioreactor design, microbial community characterization, and bioremediation of soils and water contaminated by toxic chemicals. ERI supports research by developing research proposals and providing instruments, facilities, and services, including molecular biology computing, capillary electrophoresis, liquid/chromatography/mass spectrometry, ion chromatography, and access to inductance coupled plasma atomic emission, HPLC, SEM, and TCLP testing capability. The Institute has full capability for recombinant DNA research and has recently, in association with the Idaho National Engineering and Environmental Laboratory (INEEL), added a Molecular Ecology and Genomics Laboratory with complete capability for preparation and experimentation with oligonucleotide arrays. ERI assists in the multidisciplinary training of predoctoral and postdoctoral scientists from departments that award graduate degrees in environmental fields.

**Forest, Wildlife and Range Experiment Station.** The Forest, Wildlife and Range (FWR) Experiment Station is the research arm of the College of Natural Resources. Its staff includes all members of the college faculty, full-time research associates and technicians, and graduate students. The station staff conducts research on a wide variety of natural resource management problems in the areas of forestry, forest products, range, wildland recreation, wildlife, and fisheries. Because many of the graduate students enrolled in the college are on assistantships associated with station projects, the programs of the experiment station are closely connected with the college's graduate education mission.

**Glaciological and Arctic Sciences Institute.** Established by the Board of Regents in 1975, the Glaciological and Arctic Sciences Institute, located in the College of Mines and Earth Resources, is a cooperative summer program with the University of Alaska-Southeast and the Foundation for Glacier and Environmental Research, Pacific Science Center, Seattle WA. It promotes opportunities and administers academic field work on the Juneau Icefield on the Alaska-B.C.-Yukon border. The two-month field training and research involvement on the Western Hemisphere's fifth largest icefield is expeditionary and interdisciplinary in nature and emphasizes the environmental and earth systems sciences. It includes field geology, exploration geophysics, glaciology, Pleistocene stratigraphy, process geomorphology, glacio-hydrology, arctic geobotany, remote sensing, and allied areas of the atmospheric sciences and survey and mapping. This program has an international scope and is the only one of its kind in the U.S. The summer session is in an expedition mode and runs for eight consecutive weeks during July and August. Upwards of 40 students participate, including undergraduate and graduate students, some high school science teachers, and a select number of high ability high school senior student advance placements. In recent years, NASA, the National Science Foundation, the M. J. Murdock Charitable Trust, the U.S. Army Research Office, the Department of Defense, the National Geographic Society, and the Foundation for Glacier Research have supported a number of full and partial field scholarships. Because these awards are limited and competitive, early application is encouraged. Experiential training is emphasized and up to 9 credits can be earned. Opportunities for senior thesis and graduate thesis work are available with a faculty/student ratio of nearly one to one.

**Hagerman Fish Culture Experiment Station.** The Hagerman Fish Culture Experiment Station is located in the heart of Idaho's aquaculture industry in the Magic Valley. Most of Idaho's large commercial aquaculture operations are located in that area, and the close proximity of the research facility provides opportunities for industry partnerships in aquaculture research.

The Hagerman Station is a field laboratory of the College of Agricultural and Life Sciences, and is a part of the Aquaculture Research Institute. UI scientists from various disciplines conduct research at the station in both commercial and conservation aquaculture sciences and technologies. Research is conducted within two centers at the station: the Center for Sustainable Aquaculture and the Center for Salmonid and Freshwater Species at Risk.

Within the centers, researchers apply their expertise in traditional academic disciplines to aquaculture and conservation fisheries problems. The station supports undergraduate and graduate-level research by students from the University of Idaho, Boise State University, Idaho State University, and other regional universities, including the University of Washington, Washington State University, and the University of California, Davis. Collaborative research projects are conducted with federal agencies, including the U.S. Department of Agriculture, U.S. Fish and Wildlife Service, and the National Marine Fisheries Service, and with state agencies, Tribal agencies, and companies involved in all aspects of the aquaculture industry.

The Hagerman Station works closely with Idaho's aquaculture extension educator, who is nearby in Idaho's Magic Valley. Through this collaboration and that with other UI faculty and staff throughout the state, a variety of outreach activities designed to educate the public and support and promote aquaculture are pursued.

**Idaho Agricultural Experiment Station.** The Idaho Agricultural Experiment Station is the research arm of the College of Agricultural and Life Sciences. Applied and fundamental research programs provide a technological base to assist the agricultural industries and rural development in the state and region. Graduate education at the M.S. and Ph.D. levels is an integral part of most research projects. Research Centers located at Aberdeen, Boise, Caldwell, Kimberly, Moscow, Parma, Sandpoint, Tetonia, and Twin Falls provide opportunities to conduct studies in local areas where problems exist.

**Idaho Cooperative Fish and Wildlife Research Unit.** The cooperative program involving UI, College of Natural Resources, the U.S. Geological Survey, and the Wildlife Management Institute in Washington, D.C., conducts research to find answers to a broad spectrum of questions relating to the management and viability of fish and wildlife resources. Issues addressed are of local, national, and international interest. Graduate students are trained at both the master's and doctoral levels. The unit provides in-service training

for new and established conservation agency employees and provides technical assistance and information to the public and to federal and state organizations.

**Idaho Cooperative Park Studies Unit.** The UI Cooperative Park Studies Unit in the College of Natural Resources applies the results of sociological and biological research to the management of parks, preserves, and recreation areas. Because major funding comes from the National Park Service, the unit has a primary responsibility to conduct research related to the mission of the NPS and the management of the national park system. An important responsibility of the unit is technical assistance to park staffs, working directly with resource managers to help solve management problems.

**Idaho Forest, Wildlife and Range Policy Analysis Group.** The Idaho Forest, Wildlife and Range Policy Analysis Group is a research program of the Idaho Forest, Wildlife and Range Experiment Station, College of Natural Resources, created by the Idaho legislature to provide timely and objective analyses of natural resource issues of importance to the citizens of Idaho. Graduate students are involved in specific short-term tasks to support policy analysis projects.

**Idaho Geological Survey.** Established in 1919, the Idaho Geological Survey, College of Mines and Earth Resources, is the lead state agency for collecting, interpreting, and disseminating all scientific information on the geology and mineral resources of Idaho. In addition to its main office at the University of Idaho's Moscow campus, the Survey has branch offices in Boise at Boise State University and in Pocatello at Idaho State University. A staff of geologists conducts applied research with a strong emphasis on producing geologic maps and providing technical and general information to the public.

Cooperative projects between the Survey, state universities, and other academic, state, and federal institutions, including the U.S. Geological Survey, enhance research productivity and educational outreach. At the Moscow office, the Survey provides a sales service for publications and maps and maintains reference collections of statewide research. The Survey directs its activities at the broad interests of the state's citizens, teachers and students of earth science, the mineral industry, land developers, land-use planners, scientific researchers, and city, county, state, and federal agencies.

**Idaho Water Resources Research Institute.** The Idaho Water Resources Research Institute, University Research Office, was established at UI by the regents on October 24, 1963. The national institute program is administered by the United States Geological Survey of the U.S. Department of the Interior to stimulate, sponsor, coordinate, and supplement research, education, and outreach programs in the field of water resources. The institute serves the state by developing and coordinating water research programs intended to assure the state, region, and nation adequate supplies of high-quality water.

The area of water resources planning, development, and management is a composite of many disciplines. Consequently, the Idaho Water Resources Research Institute believes that professional needs in these areas are best achieved by individuals with strong basic education in a traditional academic department enhanced by programs of study in water resources problems and professional practice. The university has developed procedures that encourage existing schools and departments to strengthen their programs in light of the special needs for water resources. The Idaho Water Resources Research Institute has coordinated master's and doctoral programs in several disciplines and specializations through various participating divisional programs.

The objectives of the institute are to: (1) promote water resources research and coordinate the efforts of the various university divisions and departments involved in water resources research; (2) strengthen and coordinate water-related undergraduate and graduate programs and course offerings so that the university can supply well-trained professionals and leaders; (3) develop, gather, and disseminate research findings within the state universities and to various federal, state, local, and civic organizations interested in water resources; and (4) promote water education for both the youth and adult community within Idaho.

**Inland Empire Tree Improvement Cooperative.** The Inland Empire Tree Improvement Cooperative in the College of Natural Resources includes all of the major commercial timber holding agencies in the Inland Northwest. The cooperative's main function is genetic improvement of five forest tree species. Substantial research opportunities are available in the delineation of genetic patterns and prediction of genetic gains in

the five programs. Results of such research have the potential for immediate application in operation programs.

**Institute for Materials and Advanced Processes.** The Institute for Materials and Advanced Processes (IMAP), University Research Office, composed of scientists from a number of colleges and disciplines within the University of Idaho, supports, directs, and coordinates research in the areas of materials and advanced processing. The former area includes both structural (i.e., load bearing) and functional (e.g., electronic/magnetic devices) materials. The latter includes research on materials processing using high energy sources such as plasma, laser, and electron beam, as well as processing of polymer, ceramic, and composite materials.

Other programs in the advanced materials arena cover topics including low density metals, intermetallic compounds, and hydrogen effects in metals.

Pervasive to the whole activity is application of material science and engineering and transition of the research programs to real-world applications.

**Institute for Pacific Northwest Studies.** The Institute for Pacific Northwest Studies, College of Letters and Science, enhances awareness of history and life in the region comprising Oregon, Washington, Idaho, western Montana, Alaska, and western Canada. It fosters scholarly investigation as well as popular understanding of the Pacific Northwest and seeks to relate developments there to those in the rest of the United States, Canada, and the world. The institute promotes interinstitutional and interdisciplinary cooperation among investigators in such areas as anthropology, history, literature, political science, and sociology, and the dissemination of the resulting knowledge through monographs, lectures, seminars, workshops, and popular forums.

**Intermountain Forest Nutrition Cooperative.** The Intermountain Forest Nutrition Cooperative in the College of Natural Resources includes the major state, federal, and private forest management organizations throughout the Inland Northwest. The cooperative's main function is the support of research dealing with the nutritional management of forests. Results of such research have the potential for application in forest management programs.

**Laboratory Animal Research Facility.** A centrally located facility for housing and maintaining small animals for use in teaching and research is available to faculty members and students. Information concerning space availability, use, and services provided is available through the University Research Office or through the facility itself.

**Laboratory of Anthropology.** The Alfred W. Bowers Laboratory of Anthropology serves as a research unit within the Department of Sociology, Anthropology, and Justice Studies, College of Letters and Science. The three primary objectives are research, cultural resource management, and public outreach and education. Research facilities include the Pacific Northwest Anthropological Archives, the Asian American Comparative Collection, and the Crabtree Lithic Collection. As the Archaeological Survey of Idaho, Northern Repository, the Laboratory of Anthropology houses site forms and archaeological collections for the ten northern counties of Idaho. Public education projects include interactive presentations at area schools.

**Lionel Hampton Center.** The mission of the Lionel Hampton Center, Academic Affairs, is to ensure the future of the American art form jazz, through unique educational, research, and performance opportunities. The center is a unique partnership between the Lionel Hampton Jazz Festival and the Lionel Hampton School of Music. Each year, in late February, the Jazz Festival brings thousands of students from all over the U.S., Canada, and as far away as Japan to the UI campus to perform for judges and peers, enjoy world class concerts, and learn from jazz masters in workshop settings. The School of Music supports scholarships, visiting professorships, and courses in jazz studies. Together the Jazz Festival and School of Music service significant jazz archives including original scores, recordings, film/video, letters, photographs, and other documents, a terrific research base for jazz studies.

**Martin Institute for Peace Studies and Conflict Resolution.** The Martin Institute for Peace Studies and Conflict Resolution is an interdisciplinary research, teaching, and service center at the University of Idaho.

It was founded for the purposes of advancing research and teaching into the causes of conflict and peaceful resolution. Research is supported on global conflict and policy issues. The institute administers the undergraduate major in international studies through the Martin School of International Affairs and supports courses on conflict and peace.

**Microelectronics Research and Communications Institute**. The Microelectronics Research and Communications Institute (MRCI), University Research Office, first established at UI in 1983, focuses its research efforts on the application, development, design, and testing of high performance electronic circuits and systems. Since 1995, MRCI's capabilities have expanded into other disciplines such as avionics, real-time software, electromagnetics, communications, and intelligent controls systems. Partnerships with local and national industries as well as governmental agencies continue to provide research opportunities for UI graduate students. In addition to the microelectronics laboratory, two other research laboratories and a center reside in the MRCI: Communications and Information Engineering Laboratory, Advanced Computational Electromagnetics Laboratory, and the Center for Intelligent Systems Research (CISR). A branch of the MRCI has been established at the Boise campus to provide research opportunities in that vicinity. The MRCI also boasts the most comprehensive VLSI resource directory, accessed 15,000 times a week from around the globe *(http://www.mrc.uidaho.edu/)*.

**National Institute for Advanced Transportation Technology**. The mission of the National Institute for Advanced Transportation Technology (NIATT), University Research Office, is to work with industry, government, and research institutions to develop, evaluate, and market technologies that will improve the design and operation of transportation systems and vehicles. Four distinct centers currently operate under the umbrella of NIATT, each with a unique mission related to transportation. The **Center for Clean Vehicle Technology** focuses on electric and hybrid electric vehicles, models of alternative vehicles, and software models for vehicle performance. The **Center for Traffic Operations and Control** conducts research concerning traffic detection, control, surveillance, simulation and optimization. Erosion control, bridge construction, and pavement design, as well as planning methods, design practices, and software development fall under the auspices of the **Center for Transportation Infrastructure**. The **Idaho Technology Transfer Center** also operates within NIATT, providing leadership to support and enhance the overall effectiveness of local transportation agencies through communication, consultation, technical support, and training programs. Opportunities for graduate research funding are available through the University Transportation Centers program, the ITD/UI Cooperative Research Program, and other federal, regional, and state transportation research and technology development programs.

**Potato Center of Distinction.** The Center would encompass research programs on development of new cultivars in concert with USDA-ARS potato germplasm program; development and refinement of production methods; development on insect, disease, and weed germplasm program; development and refinement of storage methods; and utilization of potato products. The Center’s education program would include extension programming focusing on variety choice, crop production, pest management, storage, and processing. The Center would also include utilization and pesticide residue testing, research on genetic manipulation of the potato, and economic research.

**Remote Sensing Research Unit.** The Remote Sensing Research Unit, College of Natural Resources, was formed to encourage, facilitate, and coordinate, on an interdisciplinary basis, remote sensing and geographic information system (GIS) research at UI. The unit maintains "state of the art" computing hardware, software, and field equipment for project support. Research funding comes from a variety of sources including NASA, USFS, and commercial forest industries, among others. Most research projects utilize graduate students as essential elements in both data acquisition and interpretation. These projects often form the basis of either a thesis or dissertation.

**Rocky Mountain Cooperative Ecosystem Studies Unit.** The Rocky Mountain Cooperative Ecosystem Studies Unit, College of Natural Resources, is a university, federal agency partnership involving the University of Idaho, University of Montana, Montana State University, Salish Kootenai College, Utah State University, Washington State University, and federal land management agencies. The mission of this unit is to improve the scientific base for managing ecosystems in the rapidly changing social, cultural, and environmental landscape of the Rocky Mountain Region. The unit provides research, technical assistance, and training programs for federal partners and provides support for faculty and graduate student ecosystem studies programs.

**Rocky Mountain Forest Experiment Station.** The Rocky Mountain Forest Experiment Station, College of Natural Resources, with facilities on the UI campus, is a research branch of the USDA Forest Service. It conducts research in silviculture, forest health, forest genetics, and watershed management. The station provides funding to UI faculty and graduate students to pursue forestry and watershed management sciences.

**Snake River Conservation Research Center.** The Snake River Conservation Research Center at Kimberly, Idaho, has been developed as a cooperative facility between UI and the U.S. Department of Agriculture. USDA scientists specialize in research to improve soil and water management practices and to contribute to a better understanding of basic soil processes. Programs are focused on systems and practices that improve irrigation uniformity, efficiency, and crop yields; decrease costs and energy; and reduce soil erosion. Collaborative research projects between the USDA and UI specialists provide graduate students the opportunity to work closely with experts in both agencies and to utilize expanded facilities. USDA scientists hold adjunct faculty rank and may assist in directing student research projects and serve on graduate committees.

**Statistics Consulting Center.** The Statistics Consulting Center, College of Letters and Science, provides assistance in the design of experiments and sample surveys, advice on statistical analyses, and expertise on recent developments in statistical research. Proper statistical design and analysis play a key role in producing quality research within the university. The optimal time to seek statistical consulting is during the earliest stages of the research project, and certainly before any data collection stage. Faculty members and graduate students from any discipline are welcome. The center is located in on the fourth floor of Brink Hall. There is no charge for these services.

**USDA Hemoparasitic Disease Research Unit.** The USDA Hemoparasitic Disease Research Unit, College of Agricultural and Life Sciences, is a USDA-University of Idaho cooperative research unit carrying on studies dealing with blood parasites of livestock. This is the only USDA research unit dealing with hemoparasitic diseases, which are of major importance in livestock throughout the world. USDA personnel hold graduate research appointments with UI and/or Washington State University.

**U.S. Sheep Experiment Station.** The U.S. Sheep Experiment Station, College of Agricultural and Life Sciences, outside Dubois, Idaho, is linked to the College of Agricultural and Life Sciences through affiliate faculty members. The facility provides an opportunity to investigate sheep breeding and reproductive physiology, nutrition, and range and flock management.

**Wilderness Research Center**. The university-wide Wilderness Research Center (WRC), created in 1969, is located in the College of Natural Resources. The staff conducts and facilitates research by faculty, cooperators, and graduate students on wilderness and related topics. The WRC sponsors a Distinguished Lecture Series and teaches several wilderness-related undergraduate and graduate classes. Research focuses on (1) wilderness ecosystem research and monitoring and (2) use of wilderness for recreation, personal growth, therapy, education, and leadership development. In 1999, the Outdoor Behavioral Healthcare Research Cooperative (OBHRC) was established in the WRC by a consortium of 12 wilderness and outdoor treatment companies to support research important to their industry.

# Degrees Granted

On completion of specific courses of study and recommendation of the faculty, the degrees listed below are granted by the Regents of the University of Idaho. In addition, the Certificate of General Proficiency is granted to students who complete specified lower-division educational programs at the UI/Idaho Falls Center for Higher Education.

## Baccalaureate Degrees

Bachelor of Arts, B.A.
Bachelor of Science, B.S.
Bachelor of Science in
- Agricultural Economics, B.S.Ag.Econ.
- Agricultural Education, B.S.Ag.Ed.
- Agricultural Engineering, B.S.Ag.E.
- Agricultural Science and Technology, B.S.Ag.Sc.Tech.
- Agricultural Systems Management, B.S.A.S.M.
- Animal Science, B.S.An.Sc.
- Architecture, B.S.Arch.
- Art Education, B.S.Art Ed.
- Biological Systems Engineering, B.S.B.Sy.E.
- Business, B.S.Bus.
- Business Education, B.S.Bus.Ed.
- Cartography, B.S.Cart.
- Chemical Engineering, B.S.Ch.E.
- Civil Engineering, B.S.C.E.
- Computer Engineering, B.S.Comp.E.
- Computer Science, B.S.C.S.
- Dance, B.S.Dan.
- Education, B.S.Ed.
- Electrical Engineering, B.S.E.E.
- Entomology, B.S.Ent.
- Environmental Science, B.S.Env.S.
- Family and Consumer Sciences, B.S.F.C.S.
- Fishery Resources, B.S.Fish.Res.
- Food Science, B.S.F.S.
- Forest Products, B.S.For.Prod.
- Forest Resources, B.S.For.Res.
- Geography, B.S.Geog.
- Geological Engineering, B.S.Geol.E.
- Geology, B.S.Geol.
- Interdisciplinary Studies, B.S.I.S.
- Manufacturing Engineering, B.S.Mfg.E.
- Mechanical Engineering, B.S.M.E.
- Metallurgical Engineering, B.S.Met.E.
- Microbiology, B.S.Microbiol.
- Mining Engineering, B.S.Min.E.
- Molecular Biology and Biochemistry, B.S.M.B.B.
- Natural Resources Ecology and Conservation Biology, B.S.Nat.Res.Ecol.-Cons.Biol.
- Office Administration, B.S.O.Ad.
- Physical Education, B.S.P.E.
- Plant Science, B.S.Pl.Sc.
- Range Livestock Management, B.S.R.L.M.
- Rangeland Ecology and Management, B.S.Rangeland Ecol.-Mgt.
- Recreation, B.S.Rec.
- Resource Recreation and Tourism, B.S.Res.Rc.
- Soil Science, B.S.Soil Sc.

Technology, B.S.Tech.
Veterinary Science, B.S.Vet.Sc.
Wildlife Resources, B.S.Wildl.Res.
Bachelor of Fine Arts, B.F.A.
Bachelor of General Studies, B.G.S.
Bachelor of Landscape Architecture, B.L.Arch.
Bachelor of Music, B.Mus.
Bachelor of Naval Science, B.N.S.
Bachelor of Technology, B.Tech.

## Master's Degrees

Master of Arts, M.A.
Master of Science, M.S.
Master of Accountancy, M.Acct.
Master of Architecture, M.Arch.
Master of Arts in Teaching, M.A.T.
Master of Education, M.Ed.
Master of Engineering, M.Engr.
Master of Fine Arts, M.F.A.
Master of Music, M.Mus.
Master of Natural Resources, M.N.R.
Master of Natural Science, M.Nat.Sc.
Master of Public Administration, M.P.A.

## Education Specialist Degrees

Education Specialist in Adult Education, Ed.S.Ad.Ed.
Education Specialist in Counseling and Human Services, Ed.S.Couns.-Hum.Serv.
Education Specialist in Education, Ed.S.Ed.
Education Specialist in Educational Leadership, Ed.S.Ed.Ldrshp.
Education Specialist in Professional-Technical Education, Ed.S.P.-T.Ed.
Education Specialist in School Psychology, Ed.S.Sch.Psych.
Education Specialist in Special Education, Ed.S.Sp.Ed.

## Professional Degree in Law

Juris Doctor, J.D.

## Doctoral Degrees

Doctor of Philosophy, Ph.D.
Doctor of Education, Ed.D.

# Programs Offered

Programs offered by the university are shown in the list below. Entries followed by degree abbreviations are major curricula leading to the degrees indicated. After a student has completed the requirements for a degree, the degree name and, if not already a part of the degree name, the major curriculum as shown in this list are printed on the student's diploma. (By contrast, the options listed under some curricula are areas of concentration within the major. Options and academic minors are recorded only on the student's final permanent transcript.) In parentheses after each major curriculum in the list is the college or unit through which the program is offered. The abbreviations used are: Ag, College of Agricultural and Life Sciences; A&A, College of Art and Architecture; B&E, College of Business and Economics; Ed, College of Education; Engr, College of Engineering; GS, General Studies Program; Law, College of Law; L&S, College of Letters and Science; Min, College of Mines and Earth Resources; NR, College of Natural Resources. Graduate degrees, except the degree of Juris Doctor, are offered through the College of Graduate Studies.

Accountancy (B&E) M.Acct.
Accounting (B&E) B.S.Bus.
Adult Education (Ed) M.S., M.Ed., Ed.S.Ad.Ed. Doctoral programs in this fields are offered under "Education."
Agribusiness (Ag) B.S.Ag.Econ., B.S.An.Sc.
Agricultural Economics (Ag) B.S.Ag.Econ., M.S.
Agricultural Education (Ag) B.S.Ag.Ed., M.S.
Agricultural Engineering (Engr) B.S.Ag.E.
Agricultural Science and Technology (Ag) B.S.Ag.Sc.Tech.
Agricultural Systems Management (Ag) B.S.A.S.M.
Air Force Officer Education Program, cooperative with Washington State University
American Studies (L&S) B.A.
Animal Physiology (Ag) Ph.D.
Animal Science (Ag) M.S.
Animal Science-Production (Ag) B.S.An.Sc.
Anthropology (L&S) B.A., B.S., M.A.
Architecture (A&A) B.S.Arch., M.Arch., M.A.
Army Officer Education Program
Art (A&A) M.F.A., M.A.T.; also (L&S) B.A.
Art Education (A&A) B.S.Art Ed.
Athletic Training (Ed) B.S.P.E.
Biological and Agricultural Engineering (Engr) M.S., M.Engr., Ph.D.
Biological Sciences (L&S) M.Nat.Sc.
Biological Systems Engineering (Engr) B.S.B.Sy.E.
Biology (L&S) B.A., B.S.
Botany (L&S) M.S., Ph.D.
Business Economics (B&E) B.S.Bus.; see also "Economics"
Business Education (Ed) B.S.Bus.Ed., M.Ed.
Cartography (Min) B.S.Cart.
Chemical Engineering (Engr) B.S.Ch.E., M.S., M.Engr., Ph.D.
Chemistry (L&S) M.S., M.A.T., Ph.D.
Chemistry: General (L&S) B.S.
Chemistry: Professional (L&S) B.S.
Child, Family, and Consumer Studies (Ag) B.S.F.C.S.
Civil Engineering (Engr) B.S.C.E., M.S., M.Engr., Ph.D.
Classical Studies (L&S) B.A.
Clothing, Textiles and Design (Ag) B.S.F.C.S.
Communication (L&S) B.A., B.S.
Computer Engineering (Engr) B.S.Comp.E., M.S., M.Engr.
Computer Science (Engr) B.S.C.S., M.S., Ph.D.
Counseling and Human Services (Ed) M.S., M.Ed., Ed.S.Couns.-Hum.Serv. Doctoral programs in this field are offered under "Education."

Creative Writing (L&S) M.F.A.
Crime and Justice Studies (L&S) B.A., B.S.
Crop Science (Ag) B.S.Pl.Sc.
Curriculum and Instruction (Ed) M.S., M.Ed.; see also “Elementary Education” and “Secondary Education.” Doctoral programs in this field are offered under “Education.”
Dairy Science (Ag) B.S.An.Sc.
Dance (Ed) B.S.Dan.
Earth Science (Min) M.A.T.
Economics (B&E) M.S.; also (L&S) B.A., B.S.; see also “Business Economics”
Education (Ed) Ed.S.Ed., Ed.D., Ph.D.
Educational Leadership (Ed) M.S., M.Ed., Ed.S.Ed.Ldrshp. Doctoral programs in this field are offered under "Education."
Educational Technology (Ed) M.Ed.
Electrical Engineering (Engr) B.S.E.E., M.S., M.Engr., Ph.D.
Elementary Education (Ed) B.S.Ed.; see also “Curriculum and Instruction”
Engineering Management (Engr) M.Engr.
English (L&S) B.A., M.A., M.A.T.
Entomology (Ag) B.S.Ent., M.S., Ph.D.
Environmental Engineering (Engr) M.S., M.Engr.
Environmental Science (L&S) B.S.Env.S., M.S.
Family and Consumer Sciences (Ag) M.S.
Finance (B&E) B.S.Bus.
Fishery Resources (NR) B.S.Fish.Res., M.S. A doctoral program in this field is offered under "Natural Resources."
Food and Nutrition (Ag) B.S.F.C.S.
Food Science (Ag) B.S.F.S., M.S.
Foreign Languages (L&S) B.A.
Forest Products (NR) B.S.For.Prod., M.S. A doctoral program in this field is offered under "Natural Resources."
Forest Resources (NR) B.S.For.Res., M.S. A doctoral program in this field is offered under "Natural Resources."
French (L&S) B.A., M.A.T.
General Studies (GS) B.G.S.
Geography (Min) B.S.Geog., M.S., M.A.T., Ph.D.; also (L&S) B.A., B.S.
Geological Engineering (Min) B.S.Geol.E., M.S.
Geology (Min) B.S.Geol., M.S., Ph.D.
Geophysics (Min) M.S.
German (L&S) B.A., M.A.T.
History (L&S) B.A., B.S., M.A., M.A.T., Ph.D.
Horticulture (Ag) B.S.Pl.Sc.
Hydrology (Min) M.S.
Industrial Technology (Ed) B.S.Tech.
Industrial Technology Education (Ed) M.S., M.Ed.
Information Systems (B&E) B.S.Bus.
Interdisciplinary Studies (L&S) B.A., B.S., M.A., M.S. (May also be offered under the B.S.I.S. by colleges other than L&S)
Interior Design (A&A) B.F.A.
International Studies (L&S) B.A.
Landscape Architecture (A&A) B.L.Arch., M.S.
Latin (L&S) B.A.
Latin-American Studies (L&S) B.A.
Law (Law) J.D.
Management and Human Resources (B&E) B.S.Bus.
Marketing (B&E) B.S.Bus.
Marketing Education (Ed) B.S.Bus.Ed.
Materials Science and Engineering (Min) B.S.M.S.E., M.S., Ph.D.
Mathematics (L&S) B.A., B.S., M.S., M.A.T., Ph.D.
Mathematics: Applied (L&S) B.S.

Mechanical Engineering (Engr) B.S.M.E., M.S., M.Engr., Ph.D.
Medical Education (WWAMI), cooperative with University of Washington
Medical Technology (L&S) B.S.
Metallurgical Engineering (Min) B.S.Met.E., M.S.
Metallurgy (Min) M.S.
Microbiology (Ag) B.S.Microbiol.; also (L&S) B.S.
Microbiology, Molecular Biology and Biochemistry (Ag) M.S., Ph.D.
Mining Engineering (Min) B.S.Min.E., M.S.
Mining Engineering-Metallurgy (Min) Ph.D.
Molecular Biology and Biochemistry (Ag) B.S.M.B.B.
Music (L&S) M.A., M.Mus.
Music: Applied (L&S) B.A., B.S.
Music: Business (L&S) B.Mus.
Music: Composition (L&S) B.Mus.
Music: History and Literature (L&S) B.A., B.S.
Music: Instrumental Performance (L&S) B.Mus.
Music: Theory (L&S) B.A., B.S.
Music: Vocal Performance (L&S) B.Mus.
Music Education: Instrumental (L&S) B.Mus.
Music Education: Vocal (L&S) B.Mus.
Music Education: Vocal-Instrumental (L&S) B.Mus.
Natural Resources (NR) M.N.R., Ph.D.
Natural Resources and Rural Development (Ag) B.S.Ag.Econ.
Natural Resources Ecology and Conservation Biology (NR) B.S.Nat.Res.Ecol.-Cons.Biol.
Naval Science (L&S) B.N.S.; also Navy-Marine Officer Education Program
Nuclear Engineering (Engr) M.S., M.Engr., Ph.D. (limited to students enrolled at Idaho Falls)
Office Administration (Ed) B.S.O.Ad.
Philosophy (L&S) B.A., B.S.
Physical Education (Ed) B.S.Ed., M.S., M.Ed. Doctoral programs in this field are offered under "Education."
Physics (L&S) B.A., B.S., M.S., M.A.T., Ph.D.
Plant Protection (Ag) B.S.Pl.Sc.
Plant Science (Ag) M.S., Ph.D.
Political Science (L&S) B.A., B.S., M.A., Ph.D.
Production/Operations Management (B&E) B.S.Bus.
Professional-Technical Education (Ed) B.S.Ed., M.S., M.Ed., Ed.S.P.-T.Ed. Doctoral programs in this field are offered under "Education."
Psychology (L&S) B.A., B.S., M.S.
Public Administration (L&S) M.P.A.
Range Livestock Management (Ag & NR) B.S.R.L.M.
Rangeland Ecology and Management (NR) B.S.Rangeland Ecol.-Mgt., M.S. A doctoral program in this field is offered under "Natural Resources."
Recreation (Ed) B.S.Rec., M.S.
Resource Recreation and Tourism (NR) B.S.Res.Rc., M.S. A doctoral program in this field is offered under "Natural Resources."
School and Community Health Education (Ed) B.S.Ed.
School Psychology (Ed) Ed.S.Sch.Psych.
Science/Preveterinary (Ag) B.S.An.Sc., B.S.Vet.Sc.; see also "Veterinary Science."
Secondary Education (Ed) B.S.Ed.; see also “Curriculum and Instruction.”
Sociology (L&S) B.A., B.S.
Soil Science (Ag) B.S.Soil Sc., M.S., Ph.D.
Spanish (L&S) B.A., M.A.T.
Special Education (Ed) B.S.Ed., M.S., M.Ed., Ed.S.Sp.Ed. Doctoral programs in this field are offered under "Education."
Sport Science (Ed) B.S.P.E.
Statistics (L&S) M.S.
Studio Art (A&A) B.F.A.
Systems Engineering (Engr) M.Engr.

Teaching English as a Second Language (L&S) M.A.
Technology Education (Ed) B.S.Ed.
Theatre Arts (L&S) B.A., B.S., B.F.A., M.F.A.
Veterinary Science (Ag) M.S.; also Veterinary Medicine, cooperative with Washington State University and Oregon State University. See also "Science/Preveterinary."
Wildlife Resources (NR) B.S.Wildl.Res., M.S. A doctoral program in this field is offered under "Natural Resources."
Zoology (L&S) M.S., Ph.D.

## Academic Minors Offered

A student may elect to pursue one or more of the academic minors listed below. See regulation J-9 in Part 3.

Accounting
Advertising
Aerospace Studies
Aging Studies
Agribusiness
Agricultural Economics
Agricultural Extension Education
Agricultural Systems Management
American Government/Public Law
American Indian Studies
American Studies
Animal Science
Anthropology
Architecture
Art
Athletic Training
Biochemistry
Biology
Business
Chemistry
Classical Studies
Coaching
Communication Studies
Comparative/International Politics
Computer Science
Crime and Justice Studies
Crop Science
Dance
Economics
English
Entomology
Environmental Communication
Fire Ecology and Management
Fishery Resources
Food Science
Forest Products
Forest Resources
French
Geology
German
Greek

History
Horticulture
Interdisciplinary Studies
Interior Design
International Business
International Political Economy (Econ and PolS)
International Studies
Journalism
Landscape Architecture
Latin
Manufacturing Engineering
Mathematics
Mechanical Engineering
Metallurgical Engineering
Microbiology
Mining Engineering
Molecular Biology and Biochemistry
Music
Natural Resource Economics and Community Development
Natural Resources
Naval Science
Outdoor Recreation Leadership (HPERD and RRT)
Philosophy
Physics
Plant Protection
Political Science
Psychology
Public Administration and Policy
Public Relations
Rangeland Ecology and Management
Recreation
Recreational Therapy
Religious Studies
Sociology
Soil Science
Spanish
Sport Ethics
Sport Science
Statistics
Teaching English as a Second Language
Technical Theatre
Theatre Arts
Tourism and Leisure Enterprises (HPERD and RRT)
Visual Communication
Wilderness and Nature Conservation
Wildlife Resources
Women's Studies
Writing

# Certificates of Completion Offered

For information about Certificates of Completion, please see Part 4. Requirements for certificates offered by a department may be obtained at the relevant department. Requirements for university-wide certificates are listed in Part 4.

**College of Agricultural and Life Sciences**
School of Family and Consumer Sciences
- Extension Nutrition Program

**College of Education**
Division of Health, Physical Education, Recreation and Dance
- Character Education

**College of Engineering**
Department of Civil Engineering
- Civil Engineering
- Structural Engineering
- Water Resources Engineering

Department of Computer Science
- Secure and Dependable Computing Systems

Department of Electrical and Computer Engineering
- Communication Systems
- Power System Protection and Relaying

Department of Mechanical Engineering
- Advanced Materials Design
- Heating, Ventilation, and Air Conditioning Systems

**College of Letters and Science**
Program in Environmental Science
- Environmental Contamination Assessment
- Environmental Water Science

Sociology, Anthropology, and Justice Studies
- Diversity and Stratification (Interdisciplinary certificate)

**College of Mines and Earth Resources**
Department of Geography
- Geographic Information Systems

Department of Materials, Metallurgical, Mining, and Geological Engineering
- Advanced Materials Technology
- Applied Geotechnics

**University-wide Certificate**
- University of Idaho Leadership Certificate

# Undergraduate Admission to the University

Information about the undergraduate admission process is available from the Undergraduate Admissions and New Student Services Offices. A prospective student will be sent an application for admission, scholarship and financial aid forms, and a means of requesting information on housing and various student activities. Application forms are also available on-line at http://www.its.uidaho.edu/admissions.

Students who are pursuing a baccalaureate degree are classified as undergraduates: freshmen (fewer than 26 semester credits), sophomores (fewer than 58 semester credits), juniors (fewer than 90 semester credits), or seniors.

Applicants for admission to the university must present satisfactory evidence of good character.

## Application Procedures

All applicants for admission are required to submit:

1. The appropriate, completed application form (i.e., undergraduate, nondegree, or international). Failure to list all institutions attended or submission of inaccurate transcripts or other supporting documents as specified on the application form is considered fraud and subjects the applicant to immediate cancellation of his or her registration and/or dismissal from the university.

2. Official transcripts from the last high school and all colleges or universities attended. (See sections on freshman, transfer, nondegree, or international admission requirements for further details.) **Transcripts submitted in support of an application must be official and must be sent directly to the Undergraduate Admissions Office by the issuing institution. Transcripts received become the property of the university and cannot be returned, copied, or forwarded.** Official transcripts must be signed by the registrar, superintendent, principal, or other authorized official of the school.

3. Scores from the College Board (SAT) or the American College Testing Program (ACT) if applying for admission to the freshman class. This includes transfer applicants with fewer than 14 transferable semester credits.

4. A nonrefundable application fee of $30 for domestic students and $40 for international applicants. Review of the application will be delayed until this fee is received. This fee is not charged to students applying for nondegree status or to applicants seeking re-admission.

**Application Deadlines.** To provide time for evaluation and for notice of acceptance to reach the applicant before classes begin, applications and credentials should be submitted to the Undergraduate Admissions Office by August 1 for fall semester and by December 1 for spring semester. Applications and credentials for summer session should be received by the Undergraduate Admissions Office at least three weeks before the opening date of the summer session or the program in which the student intends to enroll. Applications received after the above dates will be accepted in the order of their receipt only as long as additional new students can be accommodated. Acceptance will be subject to space limitations in the division in which the applicant wishes to register. International applicants have different deadlines (see "International Admission Requirements").

**Notification of Admission.** When all of an applicant's credentials have been received and he or she has been found eligible, a letter of acceptance and information on registration procedures will be sent. Acceptance is granted for a specified semester or summer session. If an applicant does not register for the term for which he or she applied and was accepted, it will be necessary to contact the Undergraduate Admissions Office to reactivate the application if entrance at a later time is desired.

## Freshman Admission Requirements

**Freshman applicants graduating from high school prior to 1996 must meet the requirements in effect for their graduation year.**

A degree-seeking applicant with fewer than 14 semester credits of transferable college work must:

1. submit ACT or SAT scores;

2. graduate from an accredited high school with a combination of cumulative GPA and test scores as defined in the following table:

| High School GPA | | ACT Composite | | SAT Verbal + Math recentered score* |
|---|---|---|---|---|
| 3.00 – 4.00 | And | Any test score | Or | Any test score |
| 2.60 – 2.99 | And | 15 – 36 | Or | 790 – 1600 |
| 2.50 – 2.59 | And | 17 – 36 | Or | 870 – 1600 |
| 2.40 – 2.49 | And | 19 – 36 | Or | 930 – 1600 |
| 2.30 – 2.39 | And | 21 – 36 | Or | 1000 – 1600 |
| 2.20 – 2.29 | And | 23 – 36 | Or | 1070 – 1600 |
| * These scores will be used for all SAT results beginning in April 1995. The change is due to a new scoring format implemented by the College Board for the SAT. | | | | |

3. complete specified high school courses with a minimum 2.00 GPA as listed below. A credit is defined as a course taken with a minimum of 70 hours of classroom instruction. A high school credit can be counted in only one category.

   a. **English**: A minimum of 8 credits, selected from composition and literature courses or courses that integrate composition, language, and literature.

   b. **Mathematics**: A minimum of 6 credits including algebra I or applied math I, geometry or applied math II, and algebra II. An additional 2 credits are strongly recommended. Other courses may include probability, discrete math, analytic geometry, calculus, statistics, and trigonometry. **Four of the required mathematics credits must be taken in the 10th, 11th, and 12th grades.**

   c. **Social Science**: A minimum of 5 credits, selected from American government (state and local), geography, U.S. history, world history, psychology, sociology, and economics (consumer economics courses approved by the Idaho State Board of Education may be counted toward this requirement).

   d. **Natural Science**: A minimum of 6 credits, selected from anatomy, biology, chemistry, geology, earth science, physical science, physiology, physics, zoology, and applied science courses jointly approved by the State Department of Education (SDOE) and the State Department of Professional-Technical Education (DSPTE) (maximum of two credits in this category). Ecology will count if SDOE approved. At least two credits must involve laboratory science experience. Note: A laboratory science course is defined as one in which at least one class period each week is devoted to providing students the opportunity to manipulate equipment, materials, or specimens; develop skills in observation and analysis; and discover, demonstrate, illustrate, or test scientific principles or concepts.

   e. **Humanities/Foreign Language**: A minimum of 2 credits, selected from literature, history, philosophy, foreign language, fine arts, and interdisciplinary humanities (related study of two or more of the traditional humanities disciplines). These courses should emphasize history, appreciation, theory, analysis, and/or critique. History courses beyond those required for state high school graduation may be counted. Foreign language study is strongly recommended. Native American language (five Idaho tribes) may meet this requirement if taught by certified high school faculty.

   f. **Other College Preparation**: A minimum of 3 credits, of which no more than one credit may be in speech or debate (debate must be taught by a certified teacher). Other courses may include studio/performing arts (art,

dance, drama, and music) or foreign language (beyond any foreign language credit applied in the humanities/foreign language category). May include no more than two credits in SDPTE-approved classes in agricultural science and technology, business and office education, health occupations education, family and consumer sciences education, occupational family and consumer science education, technology education, marketing education, trade, industrial, and technical education, and individualized occupational training.

If a high school does not offer a required course, applicants may contact the university's Undergraduate Admissions Office for provisional admission procedures. Students who do not graduate from an accredited high school (e.g., students who earn a GED, are home schooled, or graduate from a non-accredited school) should contact the Undergraduate Admissions Office for information regarding admission requirements.

Applicants who are still in high school should apply during their senior year and should ask their high school counselor to send a copy of their current transcript to the Undergraduate Admissions Office. If qualified, the applicant will be given an early notice of tentative acceptance based on this record. Final acceptance will be granted when the university receives a final transcript mailed directly from the high school verifying that the applicant has graduated from an accredited high school and has satisfied all admission requirements.

## Transfer Admission Requirements

Applicants who have been enrolled in other colleges or universities accredited by one of the regional agencies, such as the Northwest Association of Schools and Colleges, and whose scholastic records at these institutions are satisfactory may be admitted with advanced standing. Transfer applicants must submit the following credentials to the Undergraduate Admissions Office:

1. An official transcript from the last high school attended.

2. In addition to submitting a high school transcript, transfer students must also arrange to have official transcripts sent from **each** college or university previously attended. To be considered official, transcripts must be mailed directly to the University of Idaho Undergraduate Admissions Office by the issuing institution. **Transcripts received become the property of the university, and cannot be returned, copied, or forwarded.**

Transfer students are selected from those applicants who present a cumulative grade-point average of at least 2.00 (C) for all college-level study attempted in all accredited colleges attended, exclusive of courses for which credits are not allowed. Students transferring from out-of-state schools into the College of Engineering must have a cumulative grade-point average of at least 2.80. Admission of transfer students to the landscape architecture program will be based on GPA (typically limited to 2.5 or above), test scores (ACT/SAT), and a portfolio with a letter of intent submitted to the department.

Applicants with fewer than 14 semester hours of transfer credit must meet both freshman and transfer admission requirements, including submission of the required test scores. (See "Freshman Admission Requirements," above.)

Students admitted to the University of Idaho from other collegiate educational institutions must have complied with the academic regulations for continuance in the institution(s) that they have attended in addition to the academic regulations that are applied to students enrolled in this institution.

## Re-admission Requirements

Students returning after two years from last attendance must complete an application for Readmission and submit official transcripts from all colleges or universities attended since last enrolling at UI. (Also see regulation B-1) Application forms are available on-line at http://www.its.uidaho.edu/admissions.

Returning students who were in good academic standing when they left the UI are guaranteed readmission. Returning students who were not in good academic standing when they left the university need to submit the above materials and follow the appropriate reinstatement procedures as stated in regulation L-4. Contact the Admissions Office for more information (208/885-6326, admappl@uidaho.edu).

## Provisional Admission

A freshman applicant who does not qualify for regular admission but satisfies one of the criteria below may petition the Admissions Committee for consideration as a provisional student.

1. Graduates from a non-accredited high school,

2. Is home schooled,

3. Earns a General Educational Development (GED) certificate and has a predicted college grade-point average of at least 2.00 based on ACT or SAT scores,

4. Deserves consideration because of special circumstances (e.g., disadvantaged or minority status, delayed entry, returning veteran, a talented student wishing to enter college early, and/or similar situations).

An applicant with previous college work who does not qualify for regular admission may also seek provisional acceptance by petitioning the Admissions Committee for consideration.

Such applicants must submit to the Undergraduate Admissions Office an application for admission, the appropriate fee, all required official transcripts and test scores, three signed letters of recommendation, and a signed written statement of the student's objectives. This information should be received in the Undergraduate Admissions Office by the application deadlines of August 1 for fall semester and December 1 for spring semester.

If admitted through the appeal process, the student may be required to attend pre-academic planning within an office or program to be specified in the letter of acceptance. Students admitted through the appeal process may be enrolled with provisional standing and will be subject to the regulations on academic probation, disqualification, and reinstatement (see regulation L in part 3).

Freshmen admitted provisionally may change to regular admission status upon satisfactory completion of 14 credits, 12 of which must be in four different categories of the general education requirements (see regulation J-3). Regular admission status must be attained within three semesters or the student will be dismissed, subject to the Admissions Committee's appeal procedures.

Transfer students admitted provisionally must enroll on probation, meet all conditions imposed by the committee, and complete the first semester with at least a 2.00 grade-point average or they will be dismissed, subject to the Admissions Committee's appeal procedure.

## Dual Enrollment

Dual enrollment is a program authorized by the Idaho State Legislature that provides qualified high school students with an opportunity to receive both high school <u>and</u> university credit for classes taken at the University of Idaho. High school students are eligible if they are at least 16 years old before the first day of class in any semester OR they have completed at least half the high school graduation requirements (generally high school juniors and seniors).

To apply for dual enrollment, students must complete the UI "Application for Accelerated Learning" form, available from the Office of Dual Enrollment (208/885-6237). The completed application must be signed by the student's parent/guardian and high school principal or counselor. Written notice of acceptance to the dual enrollment program and confirmation of registration will be provided to the student. Dual enrollment students are not eligible for federal or state financial aid programs.

## Nondegree Admission Requirements

This category is for applicants who wish to enroll in courses pertaining to their personal interest and who do not want to work toward a formal degree at the University of Idaho. Application forms are available on-line at http://www.its.uidaho.edu/admissions.

A person admitted as a nondegree student who wants to take undergraduate courses must (1) be a high school graduate or have completed the GED; (2) understand that acceptance in this category does not constitute acceptance to a degree-granting program; (3) have sufficient educational background to qualify for the course or courses in which enrollment is sought; (4) accept personal responsibility for the applicability of credits earned while registered in this category; and (5) understand that students in this nondegree category cannot be considered for federal or state financial aid.

A person admitted as a nondegree student who wants to take graduate-level courses must have an undergraduate degree from an accredited institution with a GPA of 2.80 or higher. Strict limitations exist for use of nondegree credits toward a graduate degree. Please refer to the College of Graduate Studies section in Part 4.

A student who is still in high school, junior high school, or elementary school may be admitted as a nondegree student based on the dual enrollment policies of UI. He or she must submit a letter from his or her school principal or counselor indicating permission or recommendation for taking a college class. With regard to a student who is less than junior status in high school, or less than the summer before his or her junior year, the student or the Undergraduate Admissions office shall contact the faculty member teaching the class to gain permission for the student to enroll.

Students who do not have a high school diploma or a GED, are **between** 16 and 18 years of age, and are not in high school must have a letter from a parent indicating permission or recommendation for taking a college class.

Students who do not have a high school diploma or a GED, are **under** the age of 16, and are not a junior or senior in high school must have a letter from a parent indicating permission or recommendation for taking a college class. Also, the student or the Undergraduate Admissions office shall contact the faculty member teaching the class to gain permission for the student to enroll.

Students less than junior status in high school or under the age of 16 that are admitted as nondegree students shall be admitted for one semester only. To attend another semester, students will need to have written permission (e-mail acceptable) from the faculty member teaching the class and a letter of recommendation from the student's school principal or counselor.

Applicants whose native language is not English must provide proof of English proficiency.

A nondegree student may register for no more than 7 credits each semester and may complete a maximum of 32 semester credits. Students on official UI exchange programs are not limited to 7 credits each semester. International exchange students must take 12 or more credits. Upon completion of 32 semester credits, the student must either be admitted as a degree-seeking student at the University of Idaho or submit a letter of appeal to continue as a nondegree student. Permission of the instructor is required to enroll in courses numbered 500-600. Permission of the dean of the College of Law is required to enroll in courses numbered 800-999.

A nondegree student seeking admission as an undergraduate student or as a graduate student will remain classified as a nondegree student and will not be admitted to a program until all admission requirements have been met. Total credits and the UI GPA will be considered when applying for admission.

Any deviations to the admission policy or credit limits will be acted on by the director of undergraduate admissions and/or the Admissions Committee if the student wishes to enroll for undergraduate credit. Any deviations to the admission policy or credit limits will be acted on by the associate dean of the College of Graduate Studies and director of graduate admissions and/or the Graduate Petitions Committee if the student wishes to enroll for graduate credit.

## International Admission Requirements

The University of Idaho encourages the application of qualified students from other nations to complement its student community. Admission is dependent upon credentials demonstrating a capacity to succeed academically at the university level. The Undergraduate Admissions Office recognizes that equivalents between curricula in any other country and the United States is essentially nonexistent, and, therefore, UI evaluates foreign courses and

academic transcripts in terms of approximations. Application forms are available on-line at http://www.its.uidaho.edu/admissions.

In some instances, individual departmental requirements may be more rigorous than the general UI admission requirements. In those situations, final admission is based on the department's decision.

All international students who hold nonresident alien visas and who are pursuing a degree (i.e., matriculated) must be in the current F-1 or J-1 student status and comply with the U.S. Immigration Service regulations pertaining to student status.

International student applicants must submit:

1. Official transcripts or certified copies of certificate(s), diploma(s), or government examination report(s) received from any educational institution (high school, college, or university). **These documents must be translated into English and must be sent by the certifying agency directly to the Undergraduate Admissions Office.**

2. An official score report of the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English. Students must present a minimum score of 525 (PBT) or 193 (CBT) to be considered for admission to the university. Exceptions to the minimum TOEFL requirement are made for (a) those from English-speaking countries, (b) those who have earned a degree from either a U.S. institution or an institution in another English-speaking country, or (c) those who successfully complete Level 5 of the American Language and Culture Program at the University of Idaho. The following may be used as a substitute for the TOEFL to show English proficiency: SAT verbal with a minimum score of 500; SAT plus English language proficiency (SATII-ELP) with a minimum score of 956; Cambridge International English Language Testing System (IELTS) with a minimum score of 5.5; Cambridge Certificate in Advanced English (CAE) with a pass; Cambridge Certificate of Proficiency in English (CPE) with a pass; Cambridge International "O" Levels with a pass; Michigan English Language Assessment Battery (MELAB) with a minimum score of 76; a previous degree at an accredited U.S. institution; or, based on the judgment of the Undergraduate Admissions Office, English classes that students have passed at U.S. institutions. If required, the TOEFL score or an approved substitute must be on file before the application for admission will be processed. UI does not accept scores that are more than two years old. Applicants wishing to take the Computer Based TOEFL on campus should contact the Student Counseling Center.

3. A completed "Certificate of Financial Responsibility" and all required supporting documentation. International students must present to the Undergraduate Admissions Office satisfactory statements of finances and adequate proof of financial responsibility or sponsorship for all financial obligations while attending the university.

4. A "Transfer Clearance Form" if the student is transferring to the University of Idaho from another U.S. college or university. This form, provided to the student by the Undergraduate Admissions Office, must be completed by the international programs officer or foreign student advisor at the current U.S. institution and sent to the University of Idaho before an I-20 or IAP-66 can be issued.

Undergraduate applicants who have had no previous work at the postsecondary level must have at least a 2.50 grade-point average (on a 4.0 scale) from secondary school and must also meet the criteria for being admitted to a postsecondary institution in the applicant's home country in order to be considered for admission at the University of Idaho.

Undergraduate applicants who have attended a postsecondary-level institution must have completed at least 14 transferable semester credits at an accredited institution and must present a minimum grade-point average of 2.00 for all postsecondary work attempted. For admission into the College of Engineering, transfer students must have a cumulative grade-point average of at least 2.80. Other departments have additional requirements.

Students who have completed fewer than 14 transferable semester credits (postsecondary) must meet the secondary school GPA requirements in addition to the postsecondary transfer requirements.

Applicants who do not meet the minimum university admission requirements may appeal to the Admissions Committee. Those applicants must submit an application for admission, the appropriate fee, all required official transcripts and official translations, test scores, three signed letters of recommendation, and a signed written

statement of their educational objectives. All materials supporting the applicant's appeal must be submitted in English. This information should be received in the Undergraduate Admissions Office by *June 1* in order to be considered for the fall semester and *October 1* for the spring semester.

**International Application Deadlines.** To provide time for evaluation, for notice of admission status to reach the applicant, and for INS requirements to be met for issuance of a student visa, applications and credentials should be received by the Undergraduate Admissions Office no later than the following dates: June 1 for the fall semester, October 1 for the spring semester, and March 15 for the summer session.

**International Deferred Admission.** Deferred admission may be granted to applicants who qualify academically, but have not yet achieved UI's minimum English language proficiency requirement. Students granted deferred admission must enroll in UI's American Language and Culture Program (ALCP) to achieve the department's English language requirement. If the required level of language proficiency is not achieved within a two-year time period, applicants may petition to continue in the ALCP, and will need to reactivate their application for admission to the academic department. Those who are granted deferred admission may qualify for concurrent enrollment.

**International Student Concurrent Enrollment.** Students admitted under deferred status and students enrolled in ALCP Level 5 or Level 6 may, in consultation with the coordinator of ALCP (to determine appropriate courses) and the course instructor, obtain approval to enroll as nondegree students for up to seven credits per semester of academic courses in addition to their ALCP courses. Students whose proficiency levels later prove inadequate for success in the academic courses may be withdrawn at the discretion of the academic course instructor and the ALCP coordinator. Once students achieve the necessary language qualification and pursue full admission to the university, they may apply credits of academic courses completed while in deferred status toward UI degree programs (other university and College of Graduate Studies restrictions may apply).

**International Student Health and Accident Insurance**. Supplemental health and accident insurance is mandatory for international students who hold nonresident alien visas and all accompanying dependents. Students must purchase and maintain the UI policy or document coverage of an equivalent policy before they are allowed to register or attend classes. Failure to obtain and maintain the required insurance may subject students to sanctions, up to and including disenrollment. See information on insurance in the Student Services section below.

## Evaluation of Transfer Credits

Upon admission of a transfer student, all credits earned or attempted and all grades received in college-level courses at regionally accredited institutions are evaluated and core-curriculum determinations are made by the Registrar's Office. All credits accepted must be from regionally accredited American institutions or from non-US institutions recognized by the appropriate authorities in their respective countries. The applicability of these credits to the student's program of study is determined by the student's major department. No grade points for this work are included in the computation of his or her grade-point average at the University of Idaho. Transfer credit from non-U.S. institutions is recorded with grades of pass or fail only. All transfer credits are recorded on the student's permanent record after he or she is officially registered.

**Armed Forces Credits.** The university may grant credit for completion of certain educational programs sponsored by the Armed Forces. In evaluating these programs, consideration will be given to recommendations made by the American Council on Education and other appropriate agencies and to university degree requirements.

**Credit Based on Test Scores and Military Courses.** Credit is granted for successful completion of the College Board Advanced Placement Examination, the College Level Examination Program (CLEP), and courses at military schools as recommended by the American Council on Education. Credit is also granted for students who achieve specific scores on the ACT, SAT, and COMPSSS exams. See regulation I in Part 3.

**Transfer Credit Limitations.** A maximum of 70 credits earned at junior or community colleges, or one-half of the total credits required for the student's intended baccalaureate degree program, whichever is the higher number, may be transferred to the University of Idaho.

**Vocational-Technical Credit.** Credits earned in vocational-technical courses at accredited or state-approved vocational-technical schools may be the basis for waiving requirements or transferring credits to the University of Idaho in accordance with the following regulations:

1. When equivalence has been validated by the academic department and college that offer comparable subject matter, credits may be transferred for specific lower-division courses taken at the other institution.

2. In those cases in which comparable subject matter is not taught at the University of Idaho, the amount and characterization of the credits to be transferred is determined by the department and the dean of the college into which the student is transferring (for example, a block of credits in agriculture).

3. A grade of P (pass) is recorded for such credits that are transferred.

4. Credits transferred from vocational-technical schools are included within the 48-credit limitation of extramural and similar credits that may be counted toward a baccalaureate degree (see regulation J-5-b).

5. The department into which the student transfers decides what curricular requirements, if any, will be waived (this determination may be made independently of the transfer of credits).

6. If there are any questions concerning the waiving of distributional requirements in the college into which the student transfers, such questions are to be resolved by the dean of that college.

7. Except as substitutions for equivalent courses offered by the student's academic department, no credits in vocational-technical courses taken at a vocational-technical school may be counted toward the minimum of 128 credits required for a liberal arts degree (i.e., B.A. or B.S.) in the College of Letters and Science.

## General Education Requirements for Transfer Students

One of the requirements for a UI baccalaureate degree is fulfillment of the general-education or "core-curriculum" requirements.

Students who transfer from an academic regionally accredited institution with an earned A.A. or A.S. degree have met the UI general-education requirements.

Students who transfer from any academic regionally accredited institution who have completed the equivalent of Idaho's State Board of Education general-education core (but have not completed an A.A. or A.S. degree) are not required to complete additional lower-division general-education core courses. However, these students must obtain certification of such completion from the transferring institution.

Students who enter UI without having completed an A.A. or A.S. or are not certified as having completed the equivalent of Idaho's State Board of Education general-education core have two options for fulfilling the general-education requirement. One option is to satisfy the requirement as outlined in regulation J-3 in Part 3 of this catalog. In this case, transfer credits are evaluated on a course-by-course basis for equivalency to courses specified in J-3, and deficiencies are made up by completing the necessary additional credits in non-duplicating courses listed in J-3.

The second option is to satisfy the general-education requirements established by the State Board of Education as set forth immediately below. In this case, transfer credits are evaluated by subject matter, rather than on a course-by-course basis, and deficiencies are made up by completing the necessary additional credits in non-duplicating courses listed in J-3.

**Alternative General Education Requirements for Transfer Students.** A total of at least 36 credits that fit within the following categories and credit ranges must be completed.

a. **Communications**: 1 course (2-3 credits). Courses in this area enhance the student's ability to communicate clearly, correctly, logically, and persuasively in spoken English. Disciplines--debate, rhetoric, and speech.

b. **English Composition**: 1-2 courses (3-6 credits, depending on initial placement results). To satisfy this category, students must be able to express themselves in clear, logical, and grammatically correct written English. The first three credits may be exempt by ACT, SAT, CLEP, or College Board AP exam.

c. **Behavioral and Social Science**: 2-4 courses (6-12 credits). Courses in this area provide instruction in the history and culture of civilization; the ways political and economic organizations, structures, and institutions function and influence thought and behavior; and the scientific method as it applies to social science research. Disciplines--anthropology, economics, geography, history, political science, psychology, and sociology. Courses must be distributed over two different disciplines.

d. **Humanities, Fine Arts, and Foreign Language**: 2-4 courses (6-12 credits). Courses in this area provide instruction in the creative process, history and aesthetic principles of the fine arts, philosophy and the arts as media for exploring the human condition and examining values, and communication skills in a foreign language. Disciplines--art, drama-theatre, foreign languages, literature, music, and philosophy.

e. **Natural Science**: 2 courses (7-12 credits). Courses in this area provide an understanding of how the biological and physical sciences explain the natural world and introduce the basic concepts and terminology of the natural sciences. Disciplines--biology, chemistry, geology, physical geography, and physics. Courses may be distributed over two different disciplines; at least one course must have had an accompanying laboratory experience.

f. **Mathematics**: 1 course (3-5 credits). Courses in this area are intended to develop logical reasoning processes; skills in the use of space, numbers, symbols, and formulas; and the ability to apply mathematical skills to solve problems. Courses may include college algebra, calculus, finite mathematics, and statistics.

# Graduate Admission to the University

Admission to the College of Graduate Studies is open to any student who holds a baccalaureate degree from an accredited college or university, who presents a scholastic record indicating probable success in graduate work, and who has maintained good academic standing in previous institutions attended. Admission is to a specific program only and initial admission is granted for a specific semester. A student may not be admitted to a degree program without the concurrence of the department offering the major or change degree programs without appropriate department and vice president for research and graduate studies approval. Refer to part 5 of this catalog for individual departmental admission requirements; in addition, contact the individual departments directly. The College of Graduate Studies gives final approval for admission.

## Final Dates for Application

To provide time for evaluation and for notice of acceptance to reach the applicant before registration, applications and credentials should be received by the Graduate Admissions Office by July 1 for fall-semester entrance and by November 1 for spring-semester entrance (see "Admission of International Students" for final dates of application by international students who hold nonresident alien visas). Applications and credentials for summer sessions should be received by the Graduate Admissions Office by April 1. Applications received after the above dates will be accepted in the order of their receipt only as long as additional new students can be accommodated. Acceptance will be subject to space limitations in the division in which the applicant wishes to register. Individual departments may have earlier application deadlines.

## Admission to Graduate Programs

A student planning to apply for work leading to a graduate degree should write to the department in which he or she wishes to major before submitting the application for graduate admission. Specific departmental admission requirements, portfolio/audition tapes for M.F.A. programs, and additional necessary information will be indicated by the department. An applicant for admission to a doctoral program is expected to have demonstrated an aptitude for research and have stronger academic qualifications than an applicant to a master's program.

## Graduate Record Examination

The Graduate Record Examination (GRE) is not a Graduate College requirement, but is required by some departments. Official copies of GRE results must come from the Educational Testing Service. In rare cases, if the examination is many years out of date, students may be able to provide unofficial results of the examination with their admission application to facilitate evaluation and acceptance. GRE scores are retained by the student's department. Applicants wishing to take the Computer Based GRE on campus should contact the Student Counseling Center.

## Admission of International Students

The Graduate College welcomes applications from qualified students from other countries. International applicants are expected to have qualifications similar to those required of other graduate students.

**Credentials.** Official transcripts and/or certified copies of the certificate, diploma, or government examination report received on completion of any college or university course work must be sent by the certifying agency directly to the Graduate Admissions Office. The credentials must be translated into English if written in a foreign language.

**English Language Proficiency.** UI requires all applicants whose primary language is not English to demonstrate proficiency in the English language. Primary language is defined as native language or the language of instruction used in previous academic work. Because most applicants report the Test of English as a Foreign Language (TOEFL) score, UI bases its minimum English language proficiency requirements on the TOEFL. UI requires a

minimum TOEFL score of 525 (paper test) or 193 (computer test). Equivalent measures of proficiency acceptable to UI include the SAT II-ELP (956), MTELP (score of 90, but even then only if administered by UI), MELAB (76), the Cambridge IELTS (5.5), Cambridge FCE (Pass), Cambridge CAE (Pass), Cambridge CPE (Pass), and Cambridge International O level (Pass). Most departments require language proficiency at the level of the TOEFL 550 (paper) or 213 (computer) or above.

**Deferred Admission.** Deferred admission may be granted to applicants who qualify academically, but who have not yet met UI's minimum English language proficiency requirement. In deferred admission status, students enroll in UI's American Language and Culture Program (ALCP) to achieve the academic department's English language requirement prior to being granted full admission and commencing their degree programs.

**Concurrent Enrollment as an Option of Deferred Admission.** Students enrolled in ALCP Level 5 or Level 6 may, in consultation with the coordinator of ALCP and the course instructor, obtain approval to enroll as nondegree students for up to 7 credits per semester of academic courses in addition to their full-time ALCP courses. Students whose proficiency levels later prove inadequate for success in the academic courses may be withdrawn at the discretion of the academic course instructor and the ALCP coordinator. Once students achieve the necessary language qualification and gain full admission to the university, they may apply the credits of academic courses completed while in deferred admission status toward UI degree programs (other university and College of Graduate Studies restrictions may apply).

**Financial Statement.** All international students who hold nonresident alien visas must present to the Graduate Admissions Office satisfactory statements of finances and adequate proof of financial responsibility or sponsorship by a reputable American citizen or organization for all financial obligations while attending the University of Idaho.

**Health and Accident Insurance.** Supplemental health and accident insurance is mandatory for international students who hold nonresident alien visas as well as for their accompanying dependents. Students must purchase and maintain or document coverage for themselves and their dependents by a policy equivalent to the UI policy before they are allowed to register or attend classes. Failure to obtain and maintain the required insurance may subject students to sanctions, up to and including disenrollment.

**Status**. International students must be in the appropriate student visa status (F-1 or J-1) in order to pursue a degree. Immigration regulations require that international students holding F-1 (non-sponsored student) or J-1 (exchange visitor, student classification) visas be certified as full-time students during the academic year. Graduate students are thus required to take a minimum of nine credit hours. An international student's major professor may be required to provide the vice president for research and graduate studies, the international student advisors, and the registrar with a written statement of the student's actual study load and progress toward the degree. It is expected that registration for thesis or dissertation credits will reflect actual work in progress, regardless of previous credits earned in this area or requirements for the completion of study.

**Deadline for Application for Admission.** To provide time for evaluation, for notice of admission status to reach the applicant, and for INS requirements to be met for issuance of a student visa, applications and credentials should be received by the Graduate Admissions Office no later than the following dates: for fall semester, May 1; for spring semester, October 1; for summer session, March 15.

**International Student Advisors**. The international student advisors (ISAs) are involved with an international student's progress at every stage of the educational process. Once a student has been admitted, the ISAs provide general information about cultural adjustment and the educational system, as well as specific details about other matters. Community contacts may be arranged, if requested. All matters pertaining to a student's status with the Immigration and Naturalization Service (U.S. Department of Justice) are handled through the ISAs' office. A mandatory orientation before registration provides new students with assistance on initial questions. After this orientation, students are invited to visit the ISAs at any time with questions or concerns relating to educational, financial, and cultural adjustment. The ISAs also serve as official liaisons between students and their consular offices or sponsoring agencies.

**Special Courses**. Courses in research and thesis writing are offered through the Department of English to international graduate students wishing to develop skills in library research, the organization and style of formal research writing, and the refinement and development of scientific English style and vocabulary.

## Transcripts and Application for Admission

Students wishing to enter the Graduate College must submit an application for admission on a form provided by the Graduate Admissions Office and have official transcripts sent directly from each institution attended to the Graduate Admissions Office. Transcripts become the property of the university and cannot be copied, returned, or forwarded.

The Test of English as a Foreign Language (TOEFL) is required for permanent residents and American citizens whose primary language is not English. Primary language is defined as native language or the language of instruction used in previous academic work.

## Acceptance

When admitted to the Graduate College, an applicant will be issued a letter of acceptance. Acceptance is granted for a specified semester or summer session. If an applicant does not register for the term indicated, it will be necessary for the applicant to notify the Graduate Admissions Office if he or she should desire to enter for a subsequent session or semester.

## Admission Categories

**Regular Enrollment.** Regular enrollment for graduate study leading toward an advanced degree may be granted by the vice president for research and graduate studies to a student who satisfies all of the following criteria: (1) has a bachelor's degree from a college or university accredited by a recognized accrediting association, (2) has an undergraduate grade-point average of 3.00 or higher for the last 60 semester credits (or 90 quarter credits) or an undergraduate cumulative grade-point average of 2.80 or higher, (3) has maintained at least a 2.80 grade-point average in subsequent academic work if any, and (4) has been reviewed and recommended for acceptance by the department administering the program in which the student seeks to enroll.

**Provisional Enrollment.** The vice president for research and graduate studies may accept for provisional enrollment, on the master's level only, a student who is not eligible for regular enrollment, if the department administering the program in which the student seeks to enroll recommends it and if at least two of the following conditions are met: if the student's undergraduate GPA shows steady improvement; if she or he has taken post-baccalaureate undergraduate level course work with A and/or B grades; if he or she has achieved the 75th percentile on the relevant GRE or equivalent exam; if he or she has been out of school for five or more years and has been working for at least one year in the field of the proposed graduate major. The department specifies conditions that the student must fulfill in order to be advanced to regular enrollment. The vice president for research and graduate studies may also grant provisional enrollment to a student who is otherwise eligible for regular enrollment but whose prospective department specifies conditions that he or she must first meet. Examples of conditions that departments may specify are: achievement of specific grades and/or completion of specific course work. **International students who hold nonresident alien visas and students who are to be appointed to assistantships cannot be accepted in provisional enrollment.**

The associate graduate dean notifies the student that he or she has been accepted for provisional enrollment. In the letter of acceptance, the following general and specific terms governing the student's provisional enrollment are stated:

1. A student may not remain in provisional-enrollment status for more than 12 consecutive calendar months (a shorter period may be specified by the department). Nor may a student remain in this status after completing nine credits (a lower credit limitation may be specified by the department).

2. A student will be advanced from provisional to regular enrollment provided he or she maintains a GPA of at least 3.00 each semester while in the provisional status (a higher GPA may be specified by the department), fulfills the conditions, if any, that were specified by the department at the time of initial enrollment, and receives no incompletes.

3. A student who does not meet the stated conditions for advancement to regular enrollment within the specified time and credit limitations cannot continue in the College of Graduate Studies or enroll in 500-level courses and is subject to normal disqualification and reinstatement procedures.

**It is the student's responsibility** to be in touch with the department regarding his or her progress toward meeting the conditions for advancement.

The conditions specified for a student's advancement to regular enrollment are established at the time of his or her acceptance and must not be changed (i.e., either strengthened or relaxed) thereafter.

Departments need not require a student to make up ALL of his or her academic deficiencies while in provisional enrollment. Performance on a limited selection of them should suffice to demonstrate whether or not the student has the ability to do satisfactory graduate work. Remaining deficiencies, if any, can be made up after the student is in regular enrollment. The department must be sure that any courses the student is required to take while in provisional enrollment will, in fact, be offered during that period.

**Unclassified Enrollment.** Unclassified enrollment is for students who do not wish to work for a graduate degree and is not to be used as a probationary category. Admission as an unclassified student does not guarantee subsequent transfer to any departmental degree program. This enrollment category is not open to international students who hold nonresident alien visas or to students who are to be appointed to assistantships. (Unclassified enrollment students are not eligible for Title IV financial aid.)

**Nondegree Student.** Refer to the “Undergraduate Admission” status above for a full description of this classification. Nondegree students are not admitted to the College of Graduate Studies. They may, however, take graduate courses with permission of the instructor and vice president for research and graduate studies provided that they have earned a baccalaureate degree with an overall 2.80 GPA. (Nondegree students are not eligible for Title IV financial aid.)

If a nondegree student receives a grade of C, D, or F in a 500-level course, he or she loses the privilege of taking more 500-level courses.

**Dual Enrollment for Graduate Students.** A graduate student may enroll in an undergraduate curriculum and be in both programs simultaneously. The Course Level Adjustment form indicating course use (graduate or undergraduate) is available at the Graduate College and must be filed each semester. The deadline for receipt of approved forms during the fall or spring semester is the tenth day of classes. For summer session deadlines, check the summer bulletin. Students in dual-level curricula will be assessed graduate fees for all courses.

**Seniors in 500-Level Courses.** A senior who has a cumulative grade-point average of 2.80 or higher may enroll in 500-level courses. The course(s) may be placed on either the undergraduate or the graduate transcript. Seniors desiring to have the class placed on a graduate transcript must submit to and have approved by the Graduate College a "Course Level Adjustment" form that lists the course(s) to be placed on the graduate transcript. If the form is not filed, the course(s) will automatically be placed on the undergraduate transcript. The placing of courses on a graduate transcript does not admit or guarantee subsequent admission of such students to the Graduate College. The deadline for filing the "Course Level Adjustment" form is the tenth day of the class for that semester or session. All courses placed on a graduate transcript, regardless of the course level, will be assessed graduate fees.

**Returning Students.** A graduate student who has completed one degree and wishes to enroll in further courses must file a change of curriculum form with the Graduate Studies Office. A returning graduate student who is in an Unclassified curriculum and requests to continue in that program but has not enrolled within two years of the term in which he or she wishes to register must file an Application for Readmission with the Graduate Admissions Office (see B-1). Readmission must be approved by the department in whose degree program the returning graduate student wishes to enroll. If the department denies the readmission, the student will be moved automatically into Unclassified enrollment status.

# Student/Program Assessment

The University of Idaho, along with all other public institutions of higher education in Idaho, is required by policy of the State Board of Education to assess student learning in general education and in the academic majors. In late 1991, the Northwest Association of Schools and Colleges, which provides institution-wide accreditation for the university, issued similar guidelines requiring assessment.

Effective teaching and learning are essential to meeting our long-held goal of producing responsible, well-prepared citizens and leaders in their professions. Our program of student outcomes assessment has been implemented to ensure that we continually improve the teaching and learning process and the programs that support that process.

Information vital to effective assessment includes student performance as well as student opinions on the quality of university academic programs and services. To provide this information, students may be required to participate in assessment activities; these may include, but are not limited to, examinations, performance assessments, interviews, surveys, focus groups, and follow-up studies after graduation.

# Mutual Responsibility Agreement

UI's acceptance of a student for admission and the student's enrollment in the university constitute an agreement of mutual responsibility. The student's part of this agreement is to accept established UI policies and rules, to respect the laws of governmental units, and to act responsibly and in a manner appropriate to these laws, policies, and rules. UI's part is to carry out its commitment to higher education, to fulfill its responsibilities in pursuit of the academic goals and objectives of all members of the university community, and to meet its obligation to provide an atmosphere in which students will have an opportunity to be heard in matters affecting their welfare as students. UI must take appropriate disciplinary action when it has been ascertained that a student's action is contrary to UI regulations and thus that this agreement has been violated.

# Fees and Expenses

**The rates and procedures in this section are subject to change without notice.**

The rates and procedures quoted in this section were in effect during the 2001-2002 school year. The Board of Regent's of the University of Idaho approve rate changes each April. For the most current rate information, go to http://www.baas.uidaho.edu/acctrec.

Students are encouraged to register early for classes at the University of Idaho. Information about the registration process is available from the Registrar's Office (208/885-6731, http://www.uidaho.edu/registrar). Information regarding fees is available from the Student Accounts Office (208/885-7447, http://www.baas.uidaho.edu/acctrec).

## Annual Expenses

Estimated annual expenses include the cost of undergraduate student fees, nonresident tuition (if applicable), grad/law/architecture fees (if applicable), room and board, books, and miscellaneous costs (clothing, laundry, transportation, incidentals, social/recreational expenses, fraternal affiliations, and personal needs). For an estimated cost of attendance, see the Financial Aid website, http://www.its.uidaho.edu/finaid/cost.asp.

Students can choose to pay fees in installments. Payment information is shown in the "Deferred Payment of Fees" section further on in this catalog section. Personal checks, bank drafts, money orders, travelers checks, Discover, VISA, and MasterCard are accepted by the university.

## Full/Part-Time Registration Fees

**Architecture Dedicated Fee.** College of Art and Architecture students enrolled in academic courses for landscape architecture, interior design, and the architecture professional program pay the graduate fee and the architecture dedicated fee in addition to the undergraduate student fee and, if applicable, nonresident tuition. Students carrying eight or more credits will pay the full-time Architecture fee; students carrying seven credits or less pay the part-time Architecture fee. Accounts website, http://www.baas.uidaho.edu/acctrec, for current fee rates.

**Graduate/Professional Fee.** Graduate students pay this fee in addition to the undergraduate student fee and, if applicable, nonresident tuition. Undergraduate and nondegree students enrolling in graduate courses must also pay the appropriate graduate fee. Students carrying eight or more credits will pay the full-time Graduate/Professional fee; students carrying seven credits or less pay the part-time Graduate/Professional fee. See the Student Accounts website, http://www.baas.uidaho.edu/acctrec, for current fee rates.

**Law Fee.** Law students pay the graduate fee and the law fee in addition to the undergraduate student fee and, if applicable, nonresident tuition. Students carrying eight or more credits will pay the full-time Law fee; students carrying seven credits or less pay the part-time Law fee. See the Student Accounts website, http://www.baas.uidaho.edu/acctrec, for current fee rates.

**Undergraduate Student Fee.** Unless exempted, students carrying eight or more credits and all research/instructional assistants (including faculty-staff spouses) on full appointment pay the full-time undergraduate student fees. Students carrying seven credits or less pay the part-time undergraduate student fees. In addition, students in certain divisions may need to pay special fees (see "Special Fees" below). See the Student Accounts website, http://www.baas.uidaho.edu/acctrec, for fee payment deadlines.

Payment of full-time fees covers most laboratory and course charges and entitles the student to membership in the Associated Students University of Idaho (ASUI), to a nontransferable student identification card, to the services of the Alumni Office, and to the other services and facilities maintained by the university for the benefit of the students, subject to charges for special services and the payment of the special fees listed below. No reduction in fees can be made for students who may not want to use any part of these services.

**WUE Fee.** The Western Undergraduate Exchange Program fee is equal to 50 percent of the institution's full-time undergraduate student fee. This fee is in addition to the undergraduate student fees; nonresident tuition is not

assessed to WUE students. See the Student Accounts website, http://www.baas.uidaho.edu/acctrec, for current fee rates

**Nonresident Tuition Fee.** Students who are classified as nonresidents of the state of Idaho pay this fee in addition to the undergraduate student fees. Students carrying eight or more credits will pay the full-time nonresident tuition; students carrying seven credits or less pay the part-time nonresident fee. See the Student Accounts website, http://www.baas.uidaho.edu/acctrec, for current fee rates. For tuition purposes, a student may be classified as an Idaho resident by meeting one or more of the following qualifications:

1. Any student who has one or more parent or parents or court-appointed guardians who are domiciled in the state of Idaho. Domicile means the individual's true, fixed, and permanent home. It is the place where that individual intends to remain, and to which that individual expects to return when that individual leaves without intending to establish a new domicile elsewhere. To qualify under this section, the parent, parents, or guardian must have maintained a bona fide domicile in the state of Idaho for at least one year before the opening day of the term for which the student matriculates. One year is interpreted as 12 consecutive months immediately preceding the opening date of the term for which resident status is requested.

2. Any student who receives less than 50 percent of the student's support from a parent, parents, or legal guardians who are not residents of this state for voting purposes, but which student has continuously resided in the state of Idaho for 12 months next preceding the opening day of the term during which the student proposes to attend the college or university **and who has in fact established a bona fide domicile in this state primarily for purposes other than educational**. "Continuously resided" is interpreted as physical presence in the state for 12 consecutive months. Specified support applies to the 12-month period immediately preceding the opening date of the term for which resident status is requested.

3. Subject to the definition of "nonresident student" below, any student who is a graduate of an accredited secondary school in the state of Idaho, and who matriculates at a college or university in the state of Idaho during the term immediately following graduation regardless of the residency for the student's parent or guardian.

4. The spouse of a person who is classified, or is eligible for classification, as an Idaho resident for the purposes of attending a college or university. Classification under this section will require a copy of the marriage certificate, and the qualifying spouse may be required to submit proof of residency in the form of an affidavit.

5. A member of the U.S. Armed Forces, stationed in the state of Idaho on military orders. "Armed Forces" means the U.S. Army, Navy, Air Force, and Marine Corps. Uniformed services such as Coast Guard or National Guard do not qualify for residency requirements. Armed Forces members must be stationed in Idaho on active duty. A certified copy of the military orders may be requested in support of this qualification for residency classification.

6. A student whose parent or guardian is a member of the Armed Forces and stationed in the state of Idaho on military orders and who receives 50 percent or more of support from parents or legal guardians. The student, while in continuous attendance, shall not lose that residency when the student's parent or guardian is transferred on military orders. Specified support must have been provided for the 12 months immediately preceding the opening day of the term for which resident status is requested. "Armed Forces" means the U.S. Army, Navy, Air Force, and Marine Corps. Uniformed services such as Coast Guard or National Guard do not qualify for residency requirements. Armed Forces members must be stationed in Idaho on active duty. A certified copy of the military orders may be requested in support of this qualification for residency classification.

7. A person separated, under honorable conditions, from the United States Armed Forces after at least two years of service, who at the time of separation designates the state of Idaho as his or her intended domicile or who has Idaho as the home of record in service and enters a college or university in the state of Idaho within one year of the date of separation. "Armed Forces" means the U.S. Army, Navy, Air Force, and Marine Corps. Uniformed services such as Coast Guard or National Guard do not qualify for residency requirements. "Two years of service" shall mean two years of **active** duty service. Reserve duty status does not qualify for residency requirements. A certified copy of the DD-214 separation papers may be requested in support of this qualification for residency classification.

8. Any individual who has been domiciled in the state of Idaho, has qualified and would otherwise be qualified under the provisions of this statute and who is away from the state for a period of less than one calendar year and

has not established legal residence elsewhere provided a 12-month period of continuous residency has been established immediately prior to departure.

9. A student who is a member of any of the following Idaho Native American Indian tribes, regardless of current domicile: (a) Coeur d'Alene tribe; (b) Shoshone-Paiute tribes; (c) Nez Perce tribe; (d) Shoshone-Bannock tribes; and (e) Kootenai tribe.

A "nonresident student" is a student who does not qualify as a "resident student" under the provisions above, and shall include:

1. A student attending an institution in the state with the aid of financial assistance provided by another state or governmental unit or agency thereof, such nonresidency continuing for one year after the completion of the semester for which such assistance is last provided.

2. A person who is not a U.S. citizen, who does not have permanent or temporary resident status or does not hold "refugee-parolee" or "conditional entrant" status with the United States Immigration and Naturalization Service or is not otherwise permanently residing in the United States under color of the law and who does not also meet and comply with all applicable requirements of the definition of resident status.

For students who apply for special graduate and professional programs including, but not limited to, the WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Regional Medical Program, the WICHE Student Exchange Programs, Creighton University School of Dental Science, the University of Utah College of Medicine, and the Washington, Oregon, Idaho (WOI) Regional Program in Veterinary Medical Education, no applicant shall be certified or otherwise designated as a beneficiary of such special program who has not been a resident of the state of Idaho for at least one calendar year previous to the application date.

Students currently enrolled at UI may obtain information and interpretation of the residency regulations from the Registrar's Office. Students who have not yet enrolled may contact the Admissions Office.

## Special Fees

**Add/Drop Fee ($5).** This fee is charged each time an Add/Drop Form is filed after the fourth week of classes.

**Admission Application Fee.** For information concerning the application fee, see the section headed "Application Procedures" at the beginning of Part 2 of the catalog.

**Audit or Zero-Credit Fee.** Students who audit or take a course for zero credit pay this fee in addition to any special course fee unless the student has already paid the full-time student fees for that term. This fee is equivalent to the Part-Time Fee. See the Student Accounts website, http://www.baas.uidaho.edu/acctrec, for current fee rates.

**Diploma Fee ($20).** This fee is payable at the time the student applies for each degree to be awarded by the university. An additional late service charge of $30 is charged for each application filed after the date listed in the registration calendar.

**Extramural Credit Application Fee ($20). Extramural Credit Fee ($10 per credit granted).** Students seeking extramural credits earned under regulation I-2 must pay the application fee at the time of application. The per-credit fee is charged to the student's account at the time the credit is granted.

**Lab and Course Fees.** Special fees are charged for certain courses. Examples include the College of Art and Architecture that charges a general shop fee and the College of Education that charges special fees for physical education courses. See the Student Accounts website, http://www.baas.uidaho.edu/acctrec for current fee rates.

**Late Registration Service Charge ($50).** Charging this fee is an incentive for students to complete their registration early. Students who register after the first day of classes must pay this fee.

**Late Registration Fee ($50).** Students who are allowed to register after the sixth day of classes must pay this fee in addition to the Late Registration Service Charge.

**Music Special Fees.** All students who enroll in individual instruction pay a course fee. Additionally, fees are charged for some required courses within the music major curriculum. For current fees, consult the School of Music (208-885-6231) or see the lab & course fees on the Student Accounts website, http://www.baas.uidaho.edu/acctrec.

**Petition Fee ($10).** This fee is charged for each petition submitted to the Academic Petitions Committee or Graduate Council.

**Publication and Microfilming Fee ($50).** At the time the application for the degree is filed, every doctoral candidate pays this fee for the publication of the dissertation abstract and for the microfilming of the dissertation.

**Registration Fee for Senior Scholars.** Idaho residents 60 years of age and older are permitted to enroll in courses on the Moscow campus, on a space-available basis. The fee is $20 plus $5 per credit. Senior scholars are enrolled after the regular registration days. In addition to this fee, special course fees for specific courses are also assessed (see Lab and Course Fees). Registration under this program entitles the student to instruction and library privileges only, and does not include insurance, student health services, ASUI membership, or free admission to athletic events.

**Registration Fee for Staff.** Under the Employee Educational Assistance Program (UI *Faculty-Staff Handbook* Sections 3740 and 3760), salaried UI employees on regular appointment who work at least half time (including those on official leave) may enroll in the university at the reduced rate of $20 plus $5 per credit. The Educational Fee and Tuition Reduction Program is a qualified reduction plan under Section 117 of the *Internal Revenue Code*. Under this program, fees waived for enrollment in undergraduate courses (except graduate students in undergraduate courses) are exempt from federal, state, and social security taxes; fees waived for graduate level courses or for graduate students in any courses are subject to tax. The tax is payable by the employee and deductions are made from the employee's paycheck by semester.

**Registration Fee for Staff Spouse.** To be eligible for this registration fee, the spouse must be on a board appointment at least half time. If the employee has been on a continuous half-time appointment for fewer than four years, during the fall or spring semester the spouse is limited to two courses not to exceed nine credits. The maximum credits in the summer are four. If the employee has been on a continuous half-time appointment more than four years, the benefit is unlimited. The fee rate is $20 plus $5 per credit. Spouses who are graduate or instructional assistants may not use a staff spouse waiver. The value of waived fees received for graduate work is taxable income to the employee (refer to information under the staff registration fee regarding the *Internal Revenue Code*).

**Student Health Service Fees.** Student Health Services provide a broad spectrum of outpatient medical care services. Please visit the Student Health Services website, http://www.uidaho.edu/hsh/ for hours of operation, health insurance plans, scope of services, and fee for services. Student health insurance fees are also available on the Student Accounts website, http://www.baas.uidaho.edu/acctrec.

**Thesis/Dissertation Binding Fee ($16).** At the time the application for the degree is filed, every candidate for an advanced degree who is submitting a thesis or dissertation (including such terminal projects as musical compositions) pays this fee to have two copies of the document bound for the library.

**Transcript Fee ($5).** Every person who graduates from the UI is sent one student copy of their academic transcript with his or her diploma without charge. Official transcripts may be ordered at a cost of $5 per copy. See the Registrar's website, http://www.uidaho.edu/registrar, for instructions on ordering transcripts.

**WWAMI Fee.** First-year students who enroll in the WWAMI Medical Education Program pay this fee in addition to the undergraduate student fee. For the current WWAMI fee, contact the Student Accounts Office (208/885-7447).

**Yearbook Fee ($32.50).** Students wishing a *'Gem of the Mountains'* will pay this fee when their order is placed.

## Deferred Payment of Fees

Students who have no delinquent accounts with the university and who are assessed registration fees or tuition in excess of $200 are eligible to defer payment of part of the fees and tuition in accordance with the following regulations:

1. At least 40 percent of fees and tuition, in addition to the service charge specified below, must be paid at the time of registration.

2. Special fees must be paid at the time of registration including deposits, special course fees, insurance, fines, penalties, special workshop fees, and other special charges or fees.

3. Service charges for the deferred payment plan are based upon the amount deferred. This charge is nonrefundable and must be paid at the time of registration. Service charges are assessed as follows:

| Amount Deferred | Service Charge |
|---|---|
| to $200 | $15 |
| $201 - $400 | $20 |
| $401 - $700 | $25 |
| $701 - $1,000 | $30 |
| $1,001 - $1,500 | $35 |
| $1,501 - $2,000 | $40 |
| $2,000 - $2,500 | $45 |
| Over $2,500 | $50 |

4. During the fall and spring semesters, the deferred balance is payable in three equal installments which are due approximately four weeks and eight weeks into the semester. For the summer, there are two equal installments.

5. Delinquent installments are assessed an additional $10 late charge, and the registration of the student concerned is subject to cancellation. If the terms of deferral are not fulfilled, the student loses the right to defer in the future.

6. Any aid received by a student for purposes of registration (scholarships, student loans, awards, etc.) must be applied toward the registration fees. If any aid funds remain, they are available for room, board, and books.

7. For students who wish to defer their registration fees, a separate table is set up during registration. Students can check at this table to see if they can defer and, if so, a promissory note will be drawn up and signed.

8. In the event a student who owes deferred payments withdraws from school, the difference between the portion of charges that would normally be refundable, if any, and the amount paid on the deferred plan becomes immediately due and payable in full.

## Refund of Fees

Students who withdraw in accordance with the regulations governing withdrawals are entitled to the following refund of tuition and fees. Refunds are calculated on total fees and tuition charged less a $50 administrative fee for full-time students and a $20 administrative fee for part-time students. Refunds are based on the official date of withdrawal, which is considered to be the date the student begins the withdrawal process. Reduced fees paid by individuals using the employee educational benefit are not eligible for refunds. Special lab and course fees are non-refundable after the second week of class unless otherwise specified by the department charging the fee. Applicable federal Title IV financial aid funds will be returned to the Department of Education based on statutory regulations.

1. When the official date of withdrawal is prior to or on the first day of classes, 100 percent of fee and tuition charges is refunded.

2. When the official date of withdrawal is after the first day of classes but before the close of the second week of classes, 90 percent of fee and tuition charges less the applicable administrative fee is refunded.

3. When the official date of withdrawal is after the close of the second week of classes but before the close of the fourth week of classes, 50 percent of fee and tuition charges less the applicable administrative fee is refunded.

4. When the official date of withdrawal is after the close of the fourth week of classes but before the close of the eighth week of classes, 25 percent of fee and tuition charges less the applicable administrative fee is refunded.

5. When the official date of withdrawal is after the close of the eighth week of classes, no refund is given.

# University Residences

The University of Idaho's residence halls, graduate housing, and family apartments are home to many students attending the University of Idaho. University Residences is creating success through living and learning communities. UI is a residential campus, giving students the opportunity to live on-campus and participate in a unique blend of social and academic activities. There are numerous student leadership positions, educational programming, and social events. At UI, single students have the choice of 23 communities. For married students, one bedroom unfurnished apartments are available. For married students with children, one-, two-, three-, and four-bedroom unfurnished apartments are available. For single graduate students, furnished studio apartments are available that include an in-house computer lab, all utilities, and local telephone service. All of these options draw students closer to the campus environment, allowing them to share in the on-campus experience.

## Residence Halls

Living on-campus in the residence halls offers many conveniences and amenities. Every room has two Internet connections, local telephone service, and cable hookup, provided at no extra charge. Computer labs, study lounges, and TV lounges are available to all residents. Complete laundry facilities can be found in every building. The students in the Wallace Residence Center, Theophilus Tower, Gault, Upham, and McConnell Halls have easy access to a gameroom, cafeteria, convenience store, and study lounges.

Some unique living options include:

*Scholars' Residence*: Students must have a minimum high school GPA of 3.5 and keep a minimum college GPA of 3.0 to reside in the house.

*Living and Learning Communities*: Traditional Halls, CNR House, Quiet Halls, Alcohol-Free Halls, Global Village, Transfer and Non-traditional Halls, and First Year Experience Halls offer students a strong tie to academics, success, and hall programs.

*Cooperative Residences:* The Ethel Steel House for women is a smaller community where students contribute a portion of their time doing house chores in exchange for reduced room and board costs. The house has its own in-house kitchen, dining room, and meal plan.

*Alumni Residence Center (ARC):* The ARC is available to men and women who are 21 years of age or older. These single rooms are furnished, complete with hot plates and refrigerator. Room fees are expected to range from $325-355 a month in 2002-2003.

Estimated 2002-2003 rates, for a residence hall double room with meal plan ranges from $2,274-2,487 per semester. For more detailed information and to reserve student housing, please contact University Residences at 208/885-6571 or 800/681-9361, or via e-mail at housing@uidaho.edu and visit the web site at www.uires.uidaho.edu.

## Graduate Student Housing

The university offers housing for students who are enrolled in the College of Graduate Studies, College of Law, or WWAMI Program. These one-room studio apartments, located in the North Campus Center, are furnished with a bed, Microfridge®, air conditioning, and hot plates. Graduate Housing provides an in-house computer lab, Internet connection in each room., cable hookup, and local telephone service. Based on the proposed 2002-2003 rates, an apartment in Graduate Student Residences is expected to be $398-444 a month, all utilities included.

## Family Housing

For married students and students with children, the university offers affordable housing options. Apartments in these communities are expected to be $407-594 a month in 2002-2003. One-, two-, three-, and four-bedroom apartments are available. A $175 deposit, $30 application fee, and last month's fees are required in advance. To apply for an apartment, write to University Residences/Apartment Housing, PO Box 442010, Moscow, ID 83844-2010, e-mail housing@uidaho.edu, visit the web at www.uires.uidaho.edu, or call 800/681-9361 or 208/885-6571.

University-sponsored daycare facilities are available on a first-come, first-served basis and are located near these communities. Contact the Early Childhood Center at 208/885-6414 for more information.

## Quality Summer Conferences

The university houses numerous summer camps and conferences, bringing many participants to campus each year. Contact Conferences, Events, and Information Services at 208/885-6662 for more information on conference services.

## Sororities

Nine national sororities have chapters on the University of Idaho campus. Each chapter owns and operates its own chapter house. These are: Alpha Gamma Delta, Alpha Phi, Delta Delta Delta, Delta Gamma, Gamma Phi Beta, Kappa Alpha Theta, Kappa Delta, Kappa Kappa Gamma, and Pi Beta Phi. The average cost for living in a sorority is $2,050 a semester, which includes charges for room, board, all activity fees, and house corporation building fund.

The Panhellenic Council, which is the representative body of the nine sororities, coordinates intersorority activities, formulates policies, and facilitates the Formal Sorority Rush process.

**Arrangements for Sorority Living.** Membership in a sorority is done by mutual selection, where sororities extend invitations and potential members either accept or decline these invitations. Women who are interested in sorority living call 800/874-7335 or write a letter to Panhellenic Council, c/o Dean of Students Office. The selection of members in each sorority is made primarily during Formal Sorority Membership Recruitment, which is held in August before the beginning of the fall semester.

The Sorority Recruitment registration deadline is August 1 and the registration form should be sent to the Dean of Students Office. Formal Recruitment is not the only opportunity to become a member of a sorority, yet it is the only time when Recruitment is coordinated by Panhellenic Council and all sororities participate. If you are unable to participate in Formal Sorority Membership Recruitment but are interested in sorority membership, contact the Dean of Students Office, 208/885-6757.

## Fraternities

Chapters of 18 national fraternities are maintained on the University of Idaho campus. These are: Alpha Gamma Rho, Alpha Kappa Lambda, Alpha Tau Omega, Beta Theta Pi, Delta Chi, Delta Sigma Phi, Delta Tau Delta, FarmHouse, Kappa Sigma, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, and Tau Kappa Epsilon. Each of these groups is represented in the Interfraternity Council, which unites them in common service to the university and promotes a spirit of cooperation and self-government among fraternities.

Membership in a fraternity is done by mutual selection, where the fraternities extend invitations to join and potential members either accept or decline these invitations. The membership selection process is facilitated by each fraternity; the university does not make these arrangements. The average cost for living in a fraternity is $2,050 a semester, which includes room, board, and all activity fees.

**Arrangement for Fraternity Living.** Anyone interested in fraternity living should call 800/874-7335 or write a letter to Interfraternity Council, c/o Dean of Students Office. Those who indicate an interest in fraternity living will

receive information from the various fraternities during the spring and summer before they arrive at the university. Fraternity Formal Recruitment is held before the beginning of the fall semester. If you are unable to participate in Formal Recruitment but are interested in fraternity membership, contact the Dean of Students Office, 208/885-6757.

# Student Services

## Student Rights, Conduct, and Records

The "Statement of Student Rights," "Student Code of Conduct," and "Student Records Policy" are published in the *Faculty-Staff Handbook* and in the booklet entitled "Policies and Information of Interest to Students." The booklet is available from the Office of the Dean of Students (temporarily located in the Continuing Education Bldg from May 2002 through Sept 2003), the Office of the Vice President for Student Affairs (Idaho Commons 301), and other locations around the campus. Members of the university community are urged to familiarize themselves with these basic documents.

## Academic Advising and Counseling

Academic advising is regarded by the faculty as an extension of the teaching function and, therefore, as an important responsibility of each faculty member. Each matriculating student is provided with the assistance of an advisor, a member of the faculty, who attempts to communicate to students, particularly freshmen, the meaning of higher education and its significance to the student. Advisors also explain university academic requirements and assist individual students in developing programs that satisfy these requirements. The Student Counseling Center and the Career Services Center are available to assist students who are uncertain about their career objectives or are having difficulty with required curricula (see entries for these two centers below). Students should bear in mind that they have the primary responsibility for their own careers; therefore, they must take the initiative in seeking out advice and counseling. Assistance, both formal and informal, from faculty advisors and specialists, is available once sought.

## Tutoring and Academic Assistance Center

The Tutoring and Academic Assistance Center (TAAC) is the university's central academic support program. Its services include academic advising for exploratory freshmen and sophomores in the General Studies Program, freshman seminar classes (see Intr 101 and 102 in part six), tutoring in specific classes, individual counseling for academic difficulties, and a faculty-sanctioned test file.

All services of the TAAC are free to University of Idaho students. The TAAC is located on the third floor of the Idaho Commons (phone 208/885-6307).

## Polya Mathematics Center

The Polya Mathematics Center is a resource for all students who take mathematics courses or who use mathematics in other courses. Polya is located on the ground floor of Brink/Phinney Hall in two large rooms. The computer room offers students a wide range of mathematical software and courseware and is staffed during daytime and many evening hours by instructors and teaching assistants trained to answer a wide range of mathematical questions. The study and consultation room provides space for individual and group study with readily available assistance by instructors and teaching assistants.

The pre-calculus courses Math 108, 143, and 144 are taught entirely in Polya. The students in these courses are divided into focus groups of about 40 advised by an instructor. Lectures are delivered at computers by streaming video so that students can view them at their convenience and review them as needed. Those who prefer a live lecture can attend the lecture series offered three times a week. Students have a choice of working homework exercises by hand from a textbook or of working very similar exercises at the computer. The computer-mediated exercises offer assistance and immediate detection of errors. The flexible organization of these courses offers students the option of working at a faster pace than required in order to complete the courses in less than a semester.

The Polya Math Center also offers drop-in assistance for students in calculus courses similar to the assistance provided in the former Mathematics/Statistics Assistance Center. As additional assistance in calculus, the computers offer a variety of mathematical software that instructors can use for assignments that illustrate and reinforce concepts. Computers can also be used to deliver practice tests and review assignments.

Polya also serves students who have completed their formal mathematics courses and require assistance in applying mathematics. Such students are welcome to come in with questions; however, it may be necessary to refer some questions to more knowledgeable faculty than are immediately available. Polya will make partnerships with some instructors of courses that apply mathematics. These partnerships may be arrangements with Polya to provide a short course to refresh students' knowledge of a mathematical procedure used in an advanced course.

## Office of the Dean of Students

The University of Idaho is comprised of a diverse student population: 25 percent of the students are married; 45 percent of the students live on campus in 19 fraternities, 9 sororities, and 23 living groups in 8 residence halls. Approximately 20 percent of the students are from out of state, and the international students who hold nonresident alien visas represent 40 different countries. Students spend two-thirds of their time in out-of-class activities including clubs, student government, studying, intramurals, and intercollegiate activities.

A diverse student population requires that UI have a diverse student services program. The Dean of Students Office provides a variety of services that focus on assisting students. Programs and services include advising students in living groups as well as those off campus, ethnic minority students, and veterans. In addition, the Dean of Students Office coordinates New Student Orientation, Women's Center, Child Care Center, National Student Exchange Program, student leadership activities, fraternity/sorority programs, and student discipline/conduct activities.

This wide range of programs and services includes assisting families and students who may experience crisis situations that disrupt normal academic activities.

Staff members are trained to work with individuals and groups of students, or serve as a liaison between students, departments, and agencies on and off campus.

All of the services and programs are supportive of the academic mission of UI and are an integral part of the student's total education at the university.

**Sexual Assault Risk Reduction Education and Crisis Services Resource Specialists.** Educators provide sexual assault risk reduction programming for students on campus. Services include crisis intervention and referral for on-campus resources. Individual students, student leaders, university administrators, and community medical/legal professionals collaborate with Resource Specialists to create and implement positive campus policy. Risk reduction educational programs are also available to all students at no cost. For more information, call 208/885-2956.

**Women's Center.** The Women's Center staff is committed to providing a welcome environment and a sense of community for all. At the Women's Center, we foster personal and professional growth through a network of support and services including educational programming, gender equity issues, information, referrals, and outreach.

Programs and services at the Women's Center include: brown-bag lunchtime programs (presentations and discussions covering a variety of topics); library (a circulating library of over 1,500 books and journals, primarily comprised of research, information, and literature regarding gender issues; information and referral to other agencies and services); lounge (a place to relax, read, study, get acquainted with others, and exchange ideas); newsletter (a publication announcing current programs and services, and news about women's issues, published three times a semester). The center also assists with nontraditional student services and programs.

**National Student Exchange.** National Student Exchange (NSE) gives University of Idaho students the opportunity to attend one of 165 colleges or universities throughout the United States for one or two semesters. UI students pay UI fees or the resident fees of their host campus. Students normally need to apply by February for the next academic year. Credits earned on NSE fulfill University of Idaho residence-credit requirements.

To qualify for participation in the NSE, a student should: (1) be a full-time University of Idaho student; (2) be a sophomore, junior, or senior at the time of exchange; and (3) have a UI grade-point average of 2.5 at the time the application is filed. Information and applications may be obtained from the NSE Office in the Office of the Dean of Students, UCC 241 (208/885-7979).

**Student Disability Services.** The University of Idaho has established services for students with disabilities in accordance with Section 504 of the Rehabilitation Act of 1973, as amended, and with the Americans with Disabilities Act (ADA) of 1990, as amended. Student Disability Services (SDS) provides disability support services to students with temporary or permanent disabilities. Students requesting assistance must provide appropriate disability documentation to be kept on file in the SDS office and must provide adequate advance notice of such requests. These services include, but are not limited to, readers, note takers, sign language interpreters, disability parking and campus accessibility information, registration assistance, new student orientation, proctor and test-taking arrangements, or help with any other disability needs. The *Campus Guide for People with Disabilities* describes some of these typical services. The guide is available in several campus locations, including the Office of Dean of Students and the University Information Center. The guide can also be provided in large print, braille, on audio cassette tape, or on computer disk with 10 working days' notice to SDS.

Students are asked to notify Student Disability Services as soon as possible to discuss specific disability-related concerns and needs. (Students requiring academic assistance and learning disabled students should also contact Student Support Services.) This voluntary self-identification enables SDS to determine appropriate and reasonable accommodations to make classes, programs, services, and activities accessible to people with disabilities. This information will be kept in strict confidence and has no effect on admission to the university. Federal law prohibits the Admissions Office from making preadmissions inquiries about disabilities.

Information regarding disabilities, voluntarily given or inadvertently received, will not adversely affect any admissions decision.

For further information or to make arrangements, contact Student Disability Services, Idaho Commons 338 (telephone 208/885-7200; TTY [for deaf users] 208/885-7471).

**Veterans' Benefits for Educational Assistance.** The Office of Veteran Affairs assists veterans, dependents, reservists, and national guardsmen who are eligible for educational benefits through the Veterans Administration. Students expecting to receive veterans benefits must apply for benefits and should contact the Office of Veteran Affairs at least six weeks before the beginning of each semester.

To qualify for payments, all veterans must be released under honorable conditions. To receive full benefits, a veteran must be pursuing an approved course of study leading to a degree or other professional objective. To be considered full time, undergraduate students must carry 12 credits or the equivalent, and graduate students must carry 9 credits or the equivalent (see regulation O-1 in part 3).

An advisory service is available to veterans and additional information, advice on benefits, or application forms may be obtained by writing to the veterans' advisor in the Office of the Dean of Students, PO Box 442431, Moscow ID 83844-2431 (208/885-7979).

## Office of Multicultural Affairs (OMA)

UI is committed to establishing and maintaining a campus environment that promotes cultural diversity. This is accomplished through the provision of services that address specific needs of Asian American/Pacific Islander, African American, Hispanic American, and Native American students.

The Office of Multicultural Affairs provides assistance to multicultural students in the areas of advocacy, financial aid, and accessing university student support programs. OMA also works collaboratively with the university to resolve issues that may hinder recruitment and retention of multicultural students. This includes but is not limited to helping multicultural students access external and university financial aid, especially scholarships.

Multicultural student organizations serve a vital role in retention and helping to promote cultural diversity on the UI campus. These organizations are Asian American/Pacific Islander Association (AAPIA), Native American Student

Association (NASA), American Indian Science and Engineering Society (AISES) Chapter, Swu'nmp'twa (Native American Forestry Association), American Indian Business Leaders (AIBL) Chapter, Organizacion de Estudiantes Latino Americanos (OELA), and Recognizing African American Concerns in Education (RAACE). OMA assists the organizations in planning and executing campus activities of special interest to their group's members (e.g., cultural heritage months, student leadership retreat, organizational meetings, and campus educational cultural activities). For further information contact the Office of Multicultural Affairs, (208) 885-7716 or e-mail leathiab@uidaho.edu, www.uidaho.edu/oma.

## Student Support Services

Student Support Services is a federally funded educational assistance program (TRIO) that helps participating students (1) identify and pursue their educational goals, (2) establish, maintain, or improve their academic performance, and (3) work through the challenges of university life.

The Student Support Services program offers participating students individualized tutoring (in most subject areas), educational planning, academic advising, and intensive learning and study skill development. Student Support Services also provides one to one personal support. This support is particularly helpful for students with specific needs (e.g., delayed entry or re-entry, nontraditional preparation, a physical or learning disability, academic probation and reinstatement, or provisional admission).

To be eligible for services, a student must be either a U.S. citizen or permanent legal resident, must have a need for academic services, and must be EITHER (1) low income (according to federal guidelines) OR (2) from a first generation family (neither parent has earned a baccalaureate degree) OR (3) have a documented disability which impacts learning. Program participants who have financial need, who work with Student Support Services for the entire academic year, and who make satisfactory academic progress will be considered for a $750 grant aid award. Students are accepted into the program on a first-come, first-served basis and are encouraged to contact the office as early in the semester as possible. For more information, stop by the Idaho Commons, Room 333, or telephone (208) 885-6746, FAX (208) 885-9404, or e-mail sss@uidaho.edu.

## Services for Students with Learning Disabilities

Students with learning disabilities are encouraged to contact the Student Support Services program as soon as possible to register for academic services, such as tutoring, individualized learning assistance, and specialized academic advising. Although Student Support Services is not designed exclusively for students with learning disabilities, many students find the services and support available through the program to be essential to their academic success. For more information, contact Student Support Services, Idaho Commons, Room 333, or telephone (208) 885-6746, FAX (208) 885-9404, or e-mail sss@uidaho.edu. For academic accommodations, please contact Student Disability Services, Idaho Commons, Room 338, (208)885-7200. Disability documentation is required to determine the most appropriate services.

## Student Counseling Center

Many students find that it is helpful to discuss their concerns with a professional who takes the time to listen and understand. Psychologists at the Student Counseling Center are available to meet with students to discuss personal, educational, or career concerns. Counseling can help students learn more about themselves and develop new skills to deal more effectively with personal problems, problems with alcohol or other substances, relationships, and academic pressures. Counseling sessions are confidential.

The center offers the following services: crisis intervention, individual counseling, group counseling, couples counseling, educational and career counseling, educational presentations, referral, testing, and assessment of learning disabilities. In addition to psychological and vocational testing, the center coordinates and administers all of the national testing programs such as the GRE, SAT, ACT, MCAT, and LSAT. As part of this service, the center operates a Computer Based Testing Center for such testing programs as the GRE, TOEFL, GMAT, and the Praxis series. For students who wish to research issues on their own or in conjunction with a counselor, the center has a

self-help room with information to assist students with solutions to problems such as test anxiety, panic, depression, homesickness, relationship concerns, and a variety of other issues common to college students.

The Counseling Center also offers the following career development and counseling services to help students select a major and a career direction that is right for them: (1) individual and group counseling for major and career decision making, (2) career interest testing and interpretation, (3) workshops and educational presentations regarding career development, (4) career information including books, pamphlets, and vocational biographies, (5) computerized career exploration system (DISCOVER), and (6) college catalogs for the Northwest region.

Counseling services are available to full-time students without charge. An eight session limit per academic year is applicable for individual counseling sessions (exceptions to this visit limit may be considered on an individual case basis). There is no visit limit for participation group counseling programs. Please visit the Student Counseling Center web site at www.uidaho.edu/scc/ for more information about this program.

The hours of operation, scope of services, and fee-for-service charge schedule are subject to change during the academic year. Please look for changes noticed on the Student Counseling Center web site.

## Student Health Service and Insurance Plans Available to Students

Student Health Services provide a broad spectrum of outpatient medical care services. The staff includes physicians, physician assistants, and nurse practitioners. Additional health care providers include pharmacists, lab and X-ray technicians, a nutritionist, and medical and clerical support staff. Student Health Services also provides access to a psychiatrist.

A variety of health education classes and wellness programs are available to students. These programs range from fitness and nutrition classes to substance abuse and smoking cessation courses. Individual health education is available with the clinicians and medical staff at Student Health Services. Group health education in classrooms, living areas and special interest groups also is offered. A complete list of programs is available at the Student Health Services web site, http://www.uidaho.edu/shs/.

At the time of this Catalog publication, the negotiations for Student Health Services and Student Health Insurance Program (SHIP) for the 2002-03 school year were not complete. Please visit the following web sites for current information: http://www.uidaho.edu/shs/ and http://www.uidaho.edu/ship/.

The hours of operation, scope of services, and fee-for-service charge schedule are subject to change during the academic year. Please look for changes notices at the Student Health Services web site.

## Student Financial Aid Services

Financial aid is federal, state, university, and local assistance provided to eligible students through the Office of Student Financial Aid Services in the form of scholarships, grants, loans, and part-time work to help pay the cost of attending college. These programs may include scholarships, Federal Pell Grants, Federal Supplemental Educational Opportunity Grants (FSEOG), LEAP (formerly SSIG), Federal or Idaho State Work Study Programs (FWS or IDWS), Federal Perkins Loans, William D. Ford Federal Direct Loans, and Federal Direct Parent Loans to Undergraduate Students (PLUS). Financial aid is expected to supplement student and family resources. While many students do live on their financial aid, it was never intended to be the sole source of income.

### Application Process

*Priority Dates.* Because funds are limited, to receive priority consideration for all funds the student applicant must submit the Free Application for Federal Student Aid (FAFSA) so it is received by the servicer by the priority date each year. The priority date is February 15. This priority date applies to students attending both fall and spring semesters. It is recommended that students file an electronic FAFSA form, the website link can be found on the Financial Aid homepage, http://www.its.uidaho.edu/finaid/. If filing by paper, the FAFSA should be mailed no later than the end of January in order for it to reach the processor by the priority date. In addition to the FAFSA, all students who are new to the university must also have applied for admission by the February priority date. Students

who meet all of these priority dates will receive first consideration for all funds for which they qualify. Students who do not meet all of these priority dates will still be considered for Federal Pell Grants and William D. Ford Federal Direct Loans, which are available throughout the year.

*Enrollment.* Financial aid during the academic year is usually awarded in expectation of full-time enrollment: 12 credits per semester for undergraduate students, 10 credits per semester for law students, or 9 credits per semester for graduate students. If a student is receiving aid as a full-time student, he or she must be preregistered as a full-time student to receive the aid at registration. Students are required to enroll full time to receive scholarships, unless the donor specifies special circumstances allowing part-time enrollment. Students who meet all priority dates, but who enroll less than full time, will be considered for federal financial aid at a lower priority than those who are enrolled full time. Any aid given for less than full-time enrollment is generally in proportion to the student's credit load. All students must enroll at least half time (6 credits per semester for undergraduate students or 5 credits per semester for graduate or law students) to be considered for most types of financial aid.

*Scholarships.* Students who wish to apply ONLY for scholarships not based on financial need and no other types of financial aid must do one of the following in order to receive consideration: (1) Students who are attending the university for the first time only need to have a complete application for admission on file by the February 15 priority date. (2) Students who are enrolled at the university during the prior spring semester in at least 9 credits for undergraduate students, 10 credits for law students, or 6 credits for graduate students will be considered automatically (without completing any additional forms) for scholarships not based on financial need. (3) Students who are enrolled at the university for the prior spring semester but in less than 9 credits for undergraduate students, 10 credits for law students, or 6 credits for graduate students will need to notify the scholarship coordinator in Student Financial Aid Services by February 15 of their interest in scholarships not based on financial need. (4) Students who previously attended the university, but were not enrolled during the prior spring semester, must notify the scholarship coordinator in the Office of Student Financial Aid Services of their intent to enroll by the February 15 priority date.

**Work Study.** Students who are awarded Federal Work Study or Idaho State Work Study will be offered part-time employment in order to earn their award amount. Applications for these programs are part of the general application for financial aid. Awards are made based on financial need to students who meet all the priority dates.

**Direct Loans.** The University of Idaho participates in the William D. Ford Federal Direct Loan Program. Students applying for loans will not need to complete a loan application from a lender or guarantee agency used with the Federal Family Educational Loan Program. Loan funds will be provided to the student directly from the U.S. Department of Education through the University of Idaho rather than funds coming from a bank or lender. Students will be awarded these loans and asked to sign and return a master promissory note to UI. Students will need to sign a master promissory note only once during their career at the UI. Once the signed promissory note is received, the funds will be credited to the student's account.

**Eligible Programs.** Students who have one or more bachelor's degrees, who are working toward an additional undergraduate degree or a teaching certificate and who are not yet admitted to graduate school, are considered to be degree-seeking second undergraduates and are not eligible for federal grant programs (Pell, SEOG, or LEAP). They are restricted to undergraduate borrowing limits for loan programs. Students who are admitted or enrolled in the College of Graduate Studies or the College of Law are considered to be graduate students, and are eligible to apply for all financial aid programs except Federal Pell Grants and Federal Supplemental Educational Opportunity Grants. Nonmatriculated students (those not enrolled in a degree program) may not be considered for any type of financial aid. Correspondence classes may not be funded by any type of federal financial aid.

**Satisfactory Academic Progress.** Students at the University of Idaho must maintain satisfactory academic progress to receive federal student financial aid. Satisfactory academic progress will be reviewed at the end of each spring semester. For purposes of satisfactory academic progress (SAP), the academic year is defined as summer, fall, spring. Therefore, the summer performance prior to the fall and spring will be included in the review of satisfactory academic progress. Students receiving financial aid for the first time will be considered as being in good academic standing until they reach the defined annual evaluation time for satisfactory academic progress. It should be noted that the eligibility criteria for financial aid differ from those for academic eligibility contained in regulation L-6.

*Undergraduate Program.* An undergraduate student must have a minimum cumulative grade-point average upon review of satisfactory academic progress. The required minimum cumulative grade-point average is as follows:

| Having completed (number of credits) | Cumulative GPA minimum |
|---|---|
| 0-32 | 1.60 |
| 33-64 | 1.80 |
| 65 or more | 2.00 |

Students must successfully complete 75 percent of the credits attempted, up to a maximum of 12 attempted credits each semester. All attempted credits (up to a maximum of 12 credits each semester) for the summer, fall, and spring semesters will be totaled and the required number to be successfully completed will be 75 percent of that total. If a student enrolls in one semester only, the student will be expected to complete 75 percent of attempted hours for that semester, up to a total of 12 attempted credits.

Successful completion is defined as receiving earned credit as defined by the UI Academic Policy. For students receiving federal financial aid, attempted credits will be defined as the number of credits enrolled in at the time the student's financial aid is disbursed. For students not receiving federal financial aid, attempted credits will be defined as attempted hours recorded at the end of the semester in the registrar's system.

A student is allowed to have attempted up to 150 percent of the required credits for a degree. Attempted credit hours is defined as the number of attempted credits in the registrar's system or the number of earned credits, whichever is higher. For an undergraduate degree other than a Bachelor of Architecture, a student will be allowed 150 percent of the 128 minimum credit hours required for a total of 194 credits. Once a student reaches 194 credits attempted, he or she will no longer be making satisfactory academic progress. Students in the Bachelor of Architecture program will be allowed 150 percent of the 160 credits required for the five-year degree, for a total of 240 credits. Students working on a second bachelor's degree will be allowed a total of 260 undergraduate credits.

Students (other than those suspended due to 150 percent of attempted credits) suspended from receiving aid may reinstate their aid eligibility by successfully completing 12 credits with a GPA of 2.00 or better during a single term without federal or state financial aid. The student must submit a written request for the reinstatement to the Student Financial Aid Services Office.

*Graduate Program.* A graduate student must maintain a minimum cumulative grade-point average of 3.00 or better to continue to receive federal financial assistance.

Graduate students must successfully complete 75 percent of their credits attempted, up to a maximum of 9 attempted credits each semester. All attempted credits (up to a maximum of 9 credits each semester) for the summer, fall, and spring semesters will be totaled and the required number to be successfully completed will be 75 percent of that total. If a student enrolls in one semester only, the student will be expected to complete 75 percent of attempted hours for that semester, up to a maximum of 9 attempted hours.

Successful completion is defined as receiving earned credit as defined by the UI Academic Policy. For students receiving federal financial aid, attempted credits will be defined as the number of credits enrolled in at the time the student's financial aid is disbursed. For students not receiving federal financial aid, attempted credits will be defined as attempted hours recorded at the end of the semester in the registrar's system.

A graduate student in the master's degree program (except M.Ed./M.S. Counseling and Human Services, M.F.A.) requires an average of 36 credits for graduation. Therefore, students will be allowed to accumulate up to 150 percent of the 36 credits, for a total of 54 credits. Once a student accumulates 54 attempted credits, he or she will be suspended from receiving further financial assistance.

Students enrolled in the M.Ed./M.S. Counseling and Human Services, M.F.A., and all specialist degree programs require 60 credits for graduation. Students in these programs will be allowed to attempt up to 150 percent of the 60 credits for a total of 90 attempted credits. Attempted credit hours is defined as the number of attempted credits in the registrar's system or the number of earned credits, whichever is higher.

All doctoral degree graduation requirements require a minimum of 78 credits. Students enrolled in doctoral degree programs will be allowed to attempt 150 percent of the 78 credits for a total of 117 credits.

*Law Students*. Any students enrolled in the law program will be required to make satisfactory academic progress, as defined by the academic requirements of the College of Law.

Any student enrolled in the law program whose cumulative grade-point average falls below a 2.00 at the conclusion of their first semester will be placed on academic probation. If the student fails after one additional semester to obtain and maintain a 2.00 cumulative grade-point average, the student's federal financial aid will be suspended. A student whose cumulative grade-point falls below 2.00 at the end of his or her second semester, or any semester thereafter, will be suspended.

Any student who is suspended due to a grade-point average below 2.00 may once again be eligible to receive assistance upon reinstatement by the dean.

A law student is expected to successfully complete 75 percent of all attempted credits, up to a maximum of 10 credits each semester. Successful completion is defined as receiving earned credits as defined by UI Academic Policy. For students receiving federal financial aid, attempted credits will be defined as the number of credits enrolled in at the time the student's financial aid is disbursed. For students not receiving federal financial aid, attempted credits will be defined as attempted hours recorded at the end of the semester in the registrar's system. If a student is enrolled in one semester only, he or she must successfully complete 75 percent of the credits attempted for that semester, one to a maximum of 10 attempted credits.

Students enrolled in law must have a minimum of 88 credits for graduation. Students who have attempted 150 percent of the minimum required for graduation, a total of 132 credits, will be suspended from receiving further financial assistance. Attempted credit hours is defined as the number of attempted credits in the registrar's system or the number of earned credits, whichever is higher.

**Petition for Reinstatement of Aid.** Students wishing to appeal their suspension should contact the dean's office in the college in which they are enrolled. Graduate students should contact the College of Graduate Studies and law students should contact the College of Law.

Upon receiving a written petition from the student, the student's academic dean (or designee) may recommend a waiver of all satisfactory academic progress criteria due to special circumstances in a signed memorandum to the director of Student Financial Aid Services. The director will review the recommendation and make the final determination of whether to waive the suspension for the student. The decision of the academic college and the director of Student Financial Aid Services may be appealed to the Student Financial Aid Committee and then to the Administrative Hearing Board. Students may appeal to the academic college in which they were enrolled at the time of suspension or the academic college in which they are currently enrolled.

Any special circumstances concerning the student's academic progress for student financial aid will be reviewed on an individual basis. The director of Student Financial Aid Services may reinstate a student based on special circumstances unique to that student.

A letter will be sent to the student informing him or her of the financial aid suspension. A copy of the notice of financial aid suspension will be forwarded to the academic dean of the college in which the student is enrolled.

**Athletic Scholarship Appeal.** Students who have had their athletic scholarship aid reduced or eliminated may appeal the loss of funds by submitting an appeal in writing to the chair of the Student Financial Aid Committee.

Financial aid policies and procedures are subject to change without notice to assure compliance with federal and university regulations. The Office of Student Financial Aid Services may be contacted for current information (208/885-6312). Additional information is available at the Student Financial Aid website, http://www.its.uidaho.edu/finaid/.

## Leadership and Academic Achievement

Many awards are made each year in recognition of outstanding achievement both in academic and nonacademic pursuits. For information on academic awards, contact the individual academic department. For information about

Leadership and Service awards, contact the Student Activities and Leadership Programs Office, Idaho Commons Rm 302, 208/885-6331.

## Recreational, Social, Extracurricular, and Co-curricular Activities

Many of the programs and activities at the Idaho Commons and Student Union are co-curricular in design, linking students' academic endeavors with out-of-class learning experiences. Students can get involved in numerous functions and activities that meet their personal goals for individual growth and leisure time activity. UI student organizations in the Idaho Commons and Student Union are integral to the planning and implementation of educational, cultural, and recreational activities for the campus.

The **Idaho Commons** is the center of campus life and provides programs, amenities, and services to enhance the educational experience of UI students, their families, and guests. Located at the heart of campus, the Idaho Commons serves as the crossroads and meeting place for the University of Idaho. Services offered at the Idaho Commons include meeting rooms for nonacademic programs, a variety of student support services, a food court, coffee shop, convenience store, bookstore, copy service, credit union, ATMs, lounges, and administrative offices. Through various programs and services, the Idaho Commons cultivates and enhances the living and learning experience of students. Our students enjoy the many aspects of the building itself while gathering with friends to study, learn, and socialize with each other in a comfortable atmosphere. Cultural enrichment programs such as art exhibits, music, and speaker presentations are available to students, other members of the university community, and area residents. For information on Commons' activities, call 208/885-CMNS (2667) or 208/885-2233.

**ASUI - Student Government** is dedicated to addressing the needs of undergraduate students and the campus community at large. The Associated Students University of Idaho is an organization that represents the most important element of the university, the students. The ASUI Senate, while acting as a liaison between the undergraduate student population and university administration, plays a very active role in shaping policy. Student senators, who are elected to a two-semester term, are also given the opportunity to work with and learn more about the Idaho State Legislature and the State Board of Education. For those students who have a vested interest and want to shape policy in a specific area of campus life, the ASUI features nine different boards: academics, activities, community relations, elections, Idaho Commons and Union, ASUI productions, safety, athletics, and Student Recreation Center. Opportunities are also available for student appointment to university-wide committees. ASUI offices are located in the Idaho Commons in the Student Activities and Leadership Programs Office, Room 302, 208/885-6331, http://www.asui.uidaho.edu.

The **Graduate Student Association** (GSA) supports and promotes graduate student education and graduate student life at the University of Idaho. This includes creating programs and assisting graduate students during their transition from student life to professional life. GSA elections are held annually as a commitment to providing a collective voice for graduate students to the university and to the state. The GSA office is located in the Idaho Commons, Room 305, just off the Overlook Lounge. GSA can be reached at 208/885-9446 or gsa@uidaho.edu.

**ASUI Productions** allows students to organize almost all entertainment each year including blockbuster film series, small concerts, coffeehouses, "open mic" nights, comedians, educational speakers, and nationally touring bands. In the process, students gain experience with event planning and marketing. **Idaho Commons and Student Union Programs** feature weekly foreign and alternative films, noontime and summertime concerts, and Network Event Theatre free movie premieres. A College Bowl Tournament is also sponsored by ASUI Productions. For more information, contact the Student Activities and Leadership Programs Office in the Idaho Commons Room 302, 208/885-6331.

**Leadership Development** starts from the moment students enroll at the University of Idaho. An annual Fall leadership retreat promotes student development and growth through campus involvement. Students can stay involved throughout the year through periodic leadership training seminars, student organizations, and meeting with student leaders and university administrators. The **Group Opportunities and Leadership (GOAL)** program stretches both mind and body. Through activities such as ropes courses and whitewater rafting, students will develop knowledge of leadership styles, conflict resolution, communication skills, and problem solving. For more information about leadership development, contact the Student Activities and Leadership Programs Office, Idaho Commons Room 302, 208/885-6331.

**Center for Volunteerism and Service Learning.** The national community service movement is alive and well at the University of Idaho. The Volunteer Center is dedicated to providing students with opportunities to serve the community while developing group leadership skills and a better understanding of citizenship. The center coordinates several one-day service projects with the community including 'Make a Difference Day' and 'Saturday of Service' (Youth Service Day). The center also keeps an on-going catalog of service and volunteer positions available to students and student organizations. Some University classes offer credit for service commitments, and the center assists in connecting these students to community service projects. The Volunteer Center promotes the belief that young people can greatly impact our communities and future through community services and by building a lifelong ethic of civic engagement. For more information on volunteering, contact the Student Activities and Leadership Programs Office, Idaho Commons Room 302, 208/885-6331

Variety is the spice of life, and there is no better place to find your niche than with the variety of **Student Organizations** available at the University of Idaho. With more than 150 campus-wide organizations, sports clubs, and Greek chapters, students have many choices when it comes to customizing involvement. Catch a glimpse of the options available on campus by attending the Student Involvement Fair and browsing the Student Organization Guide to Involvement. Not only is it easy to find a student organization, it is just as simple to start your own. Through resources in the Student Activities Office, new organizations can gain recognition, build membership, and apply for funding from the ASUI Activities Board. For more information, contact the Student Activities and Leadership Programs Office, Idaho Commons Room 302, 208/885-6331.

The **Student Union**, located at Sixth and Deakin Streets, is home to Enrollment Services; Student Financial Aid; Student Employment; Student Media; Sound, Production, and Lighting; International Ballroom; Borah Theater; Lionel Hampton Jazz Festival office; and several meeting rooms. Services offered at the Student Union include student computer labs, a video center, a deli/espresso cafe, catering services, copy service, ATMs, and lounges.

The **Enrollment Services**, located in the newly renovated Student Union, is the headquarters for Undergraduate Admissions, Registrar, Student Accounts, and New Student Services. Branch offices of Vandal ID Card, Parking, and Housing are located near the Information Desk. The Financial Aid office and the UI Bookstore are also nearby. Tours of the campus originate from the Office of New Student Services on the main floor. For information on Student Union activities and services, call 208/885-INFO or 208/885-4636.

In **Student Media,** students utilize real-world technology in the various productions of the student newspaper, yearbook, FM radio, and advertising. *Argonaut*, the twice-weekly student newspaper, gives students the chance to gain real-world experience in media writing, computer graphics, photography, advertising, marketing, and business management. Editors, paginators, reporters, and advertising representatives have the opportunity to work with the newest technological equipment to create a product comparable to many commercial newspapers. The *Gem of the Mountains* yearbook is about much more than putting out an annual; the most important commitment of the GEM staff has been their continued dedication toward preserving the UI legacy for students and alumni. KUOI-89.3 FM, the student-run campus radio station, provides a free-form alternative to other media in the Moscow-Pullman area. Students have the opportunity to serve as on-air announcers, music and programming directors, and station manager. All student media organizations are housed on the 3rd floor of the Student Union Building, 208/885-7825.

**Sound, Production, and Lighting Services (SPL)** offers training and growth opportunities for student employees. SPL provides professional sound, lighting, and multimedia production for student-sponsored performance and entertainment events. Employment opportunities exist for technicians to work with sound, lights, and film. Other employment is also available to students interested in computer and network support. SPL is located on the 3rd floor of the Student Union, 208/885-6947.

Looking for an adventure experience? **Outdoor Programs** offers classes and informal instruction in some of today's top outdoor activities; kayaking, rafting, rock climbing, mountaineering, skiing, and other winter sports. Take advantage of Outdoor Programs Resource Center and Climbing Center, which includes 5000 square feet of climbing surface and a 55 pinnacle. Want to experience the great outdoors, but lack the gear? The **Outdoor Rental Center** has the most extensive inventory of quality outdoor equipment in the Northwest. From rafts, kayaks, and canoes to skis, climbing gear, and camping equipment, the Outdoor Rental Center is ready to serve students and the Moscow community with their outdoor needs. The Outdoor Program, the Outdoor Rental Center, and the Climbing Center are located in the Student Recreation Center (SRC). For information, call the Outdoor Program 885-6810, Rental Center 885-6170, http://www.asui.uidaho.edu/outdoors/.

Recreational facilities located on the campus include the ASUI Kibbie Activity Center, indoor and outdoor tennis and handball courts, a climbing wall, ASUI golf course, and swimming pools.

## Intercollegiate Athletics

Idaho has a proud athletic tradition and strong program in 15 sports for men and women. The teams are known as the Vandals and compete as a Division I member of the NCAA and Big West Athletic Conference. As of 2001, football will compete in the Sun Belt Conference.

Big West conference members include Cal Poly-San Luis Obispo, Cal State Fullerton, Cal State Northridge, Long Beach State, UC-Irvine, UC-Riverside, UC-Santa Barbara, Pacific, and Utah State.

The football playing members of the Sun Belt Conference are Middle Tennessee, Louisiana--Lafayette, Louisiana--Monroe, Arkansas State, North Texas, and New Mexico State.

The men's program consists of teams in football, basketball, cross country, indoor and outdoor track and field, tennis, and golf. The women's program consists of teams in basketball, volleyball, cross country, indoor and outdoor track and field, tennis, golf, and soccer.

The athletic program enjoys splendid facilities. The Kibbie-ASUI Activity Center, known as the "Kibbie Dome," houses the Athletic Department offices, team locker rooms, weight room, athletic training facilities, and academic support unit. The Kibbie Dome itself is the site for football and men's and women’s basketball games played in the newly created Cowan Spectrum within the Kibbie Dome. Historic Memorial Gymnasium is the home for Idaho volleyball. Track and field and tennis make great use of the Kibbie Dome's indoor facilities for practice and competition as well, with the five-lane, 290-meter track and the nine indoor tennis courts. The women's soccer team plays its home matches on Guy Wicks Field. The university's 18-hole championship golf course and numerous outdoor tennis courts complete the facility picture, with new renovations which began in the fall of 2000.

**Athletic Department Mission**. The UI athletic program shall serve to inspire the pursuit of excellence through honest effort, fair play, and personal integrity. Its highest priority is to enhance the educational growth of UI's young men and women. The primary purpose of the Athletic Department shall be to provide a successful, quality, competitive intercollegiate athletic experience for UI students that will enrich their lives, provide the necessary training ground for life growth, enhance the image of the institution, and build upon the academic mission of the university.

**Athletic Program Goals**. The goals of the UI athletic program are (1) to encourage the motivation and commitment necessary for academic success leading to the graduation of student-athletes; (2) to maximize opportunities for student-athletes to participate in a quality athletic program, in a gender balanced manner, with special attention paid to their educational growth and physical welfare; (3) to maximize opportunities for student-athletes to acquire positive values from their competitive sports experience and life skills enrichment programs, preparing them for a productive life; (4) to be a leader in providing equitable programs and opportunities for student-athletes and staff that exemplify the highest principles of gender and minority equity; (5) to field teams that are capable of competing on equal footing with rival institutions and that are competitive for conference championships and the national opportunities that conference championships may bring; (6) to provide the atmosphere for participants to realize the importance of others, personal dignity, individual rights, and the value of cooperative teamwork to attain personal and team goals; (7) to maximize positive involvement by the various publics with the institution through the athletic program; (8) to foster the highest standards of ethical conduct and fair play; (9) to enhance the image of the University of Idaho; and (10) to maximize and stabilize the generation of revenue from all sources to fund the athletic program.

## New Student Services

The Office of New Student Services represents the University of Idaho to prospective students and assists those students and their counselors and parents with decisions about higher education. Staff members visit high schools and present programs about the university to interested students, attend college fairs, distribute brochures, coordinate

the flow of information from UI's colleges to students who express particular educational interests, and answer questions raised by students, counselors, and parents.

New Student Services also sponsors a campus visitation program that offers prospective students an opportunity to spend a day on campus. Visiting students and their families may tour campus and living groups. NSS can arrange for overnight lodging, arrange appointments with faculty members, and suggest classes and activities that prospective students may attend. NSS also hosts several major on- and off-campus events for prospective students and their parents, including Vandal Friday and Vandal Transfer Day in the spring and the Vandal Road Trip in the fall. For more information, call the Office of New Student Services, 208/885-6163, or 88-88-UIDAHO (888/884-3246).

## Career-Related Services

The university is committed to assisting students with a wide range of career-related issues from determining career interests, choosing majors and careers, developing skills and experience through academically relevant work, preparing professional job or intern search materials, and helping with job searches, to providing on-campus interviews. Career-related services are available through a number of different offices on campus. Students are encouraged to use a full range of services throughout the university including seeking advice from academic departments, faculty members, and other appropriate campus programs. Three programs with primary responsibilities related to career development are listed below.

**Student Counseling Center**. All students face decisions about selecting a major and a career direction that is right for them. Counseling and testing are available through the Student Counseling Center to help students explore and define their interests, abilities, values, and other needs related to choosing a major and a career.

The Counseling Center offers the following career-related services: (1) individual and group counseling for major and career decision making, (2) career interest testing and interpretation, (3) workshops and educational presentations regarding career development, (4) classes for students that focus on developing the skills and knowledge base needed for career-decision making, (5) career information including books, pamphlets, and vocational biographies, (6) computerized career exploration system (DISCOVER), and (7) college catalogs for the Northwest region.

For more information, contact the Student Counseling Center, UCC 309 (208/885-6716).

**Cooperative Education**. Practical skills, on-the-job experience, and professional applications of classroom theory, qualities employers seek in prospective employees. Students will acquire such qualities by working through the University of Idaho Cooperative Education Program. The Cooperative Education staff assists students in finding internship positions with local, regional, and national employers.

Each year more than 400 students gain relevant experience through internships with over 225 different employers including NASA, Micron Technology, Idaho Governor's Office, St. Alphonsus Medical Center, Potlatch Corporation, Microsoft, Boeing, Bureau of Land Management, Battelle Pacific Northwest National Lab, U.S. Forest Service, CSHQA Architects Planners, Walt Disney World, Weyerhaeuser, INEEL, United Nations, Telect, and Hewlett Packard.

The Cooperative Education Program serves undergraduate and graduate students in all majors. To be eligible for Cooperative Education experiences, students must be in good academic standing in their degree program. Placements are typically for one summer or semester, though many employers request students with the flexibility to work two semesters. The compensation level (pay) for internships is determined by each employer; many well-paying and volunteer (unpaid) positions are available. Typically, over 70 percent of the placements each year are in paid internships.

Cooperative Education works closely with employers, faculty, and students to ensure that work experiences have academic merit and to monitor work experience progress. The granting of academic credit and course grades is determined by the academic departments based on departmental requirements, the number of hours of the placement, and the nature of additional projects assumed by the student. Students desiring credit for their experience make arrangements with their academic department prior to the internship.

To assist students in securing internships, the Cooperative Education staff gives individual advice on preparing resumes, writing effective cover letters, and internship search and networking strategies. Resources are available to help students find internships to fit their individualized needs. To help acquaint students with local opportunities, Cooperative Education annually cosponsors the Spring Career Expo of the Palouse, and a Local Internship and Student Employment Fair. Cooperative Education also coordinates a Career Development Specialist Internship each semester that provides opportunities for students to develop skills in internship materials preparation and project development.

For more information, including a complete listing of programs and services, contact Cooperative Education, Idaho Commons Room 330, 208/885-5822, cooped@uidaho.edu. Updated program information is available on the web site at www.uidaho.edu/cooped.

**Career Services**. The Career Services office provides assistance to UI students and alumni of all majors who are seeking career planning assistance and/or job opportunities in business, industry, human services, government, education, and the nonprofit sector. Numerous workshops address the special career development needs of students, and individual consultations for discussing career-related topics are also available by appointment. The UI is Idaho's most heavily recruited campus, and employer representatives visit the Career Services office to interview students for career employment and temporary/summer opportunities. An on-going listing of employment vacancies in education, business, industry, and government is maintained on our home page: www.its.uidaho.edu/careerservices. This home page also provides other information about the Career Services Office.

The Career Expo of the Palouse is an all-university career fair hosted jointly with Washington State University each fall. This event attracts over 150 employers with opportunities for regular, summer, and internship positions, as well as representatives from graduate schools and professional programs. The Career Services library includes career development books, magazines, and videotapes, job descriptions of current employment vacancies, biography information on hundreds of employers, and computer terminals to access our home page and other employment-related web sites. More information is available on our home page, at our office at the corner of Line & 7th Streets, or by calling (208) 885-6121.

## Student Employment Opportunities

Student and Temporary Employment Services (STES), located in the Student Union Building, is open to assist students in gaining employment experience and supplementing financial support. Office hours are Monday through Friday from 8 a.m. to 5 p.m. Hiring departments across campus post available positions through the STES office. All University of Idaho students are eligible to participate in the program. Hiring departments and students work together to identify a work schedule that emphasizes the student's main objective--obtaining a higher education degree. Job vacancies, applications, and additional information are available at the STES office or on the Internet at http://www.uidaho.edu/hrs/stes. *All employment and payroll forms for students are completed at the STES office, SUB Room 137, phone 208/885-4500 or 885-2889.*

## Alumni Association

The University of Idaho Alumni Association exists to foster and coordinate the support of alumni and friends of the university in strengthening the academic, research, service, and leadership-building programs of the institution. It also provides individual alumni services to its non-dues paying members throughout the world.

All former UI students who earned a UI degree or at least 90 credits at UI, and associate and honorary alumni are members of the association. The director of alumni relations and staff, along with an elected board of directors, guide the many programs, services, and activities for the more than 75,000 members.

The Alumni Association strives to keep alumni informed about their alma mater, encourage university loyalty and material support, and apprise the university community of alumni opinion. Through a variety of awards, the association honors outstanding alumni, students, or other individuals who provide exceptional service to the

institution or state of Idaho. Scholarships are given by the association to help both entering and continuing students at the university.

Alumni can maintain close ties with the university through Alumni Association services, such as travel tours, and campus, national, and worldwide gatherings for special UI occasions, including reunions and Silver and Gold Events. The association also provides and organizes support for the university through active organizations, such as the Student Alumni Relations Board and the UI Retirees Association.

Areas of recent emphasis for the association include recruiting and informing prospective students about the university, and increasing volunteer support through the development of alumni chapters and constituency groups. The association is also strengthening and expanding its membership services, through use of Internet and lifetime e-mail service.

## Religious Activities

The university is served by three campus religious centers: Campus Christian Center, corner of University and Elm; LDS Institute of Religion, 902 Deakin; and St. Augustine's Roman Catholic Center, corner of Sixth and Deakin. These centers provide opportunities for the study and practice of religion as well as resources in counseling and guidance.

All of Moscow's churches provide opportunities for religious development for University of Idaho students.

# Nontraditional/Adult Student Services

Are you older than 24? If so, you belong to a large part of our student body: 40 percent of our students are nontraditional, adult re-entry learners. The university's faculty and staff are aware of the unique experiences, interests, and concerns of our older students and the university provides a range of services and programs to help meet your needs.

The following university faculty and staff members are contact people for assisting nontraditional/re-entry students:

Bruce Pitman, Dean of Students, 208/885-6757
Meredyth Goodwin, Student Support Services, 208/885-6746
Judy Wallins, Tutoring and Academic Assistance Center, 208/885-6307
M. Jeannie Harvey, Women's Center, 208/885-6616
Martha Kitzrow, Student Counseling Center, 208/885-6716

## Academic Support Services

The university offers a range of academic assistance programs, designed to help students enhance academic achievement and/or improve performance in specific course areas. These programs include:

**Student Support Services.** Student Support Services is a federally funded program that is particularly helpful for nontraditional students (e.g., delayed or re-entry students, nontraditional preparation, and students with families). Designed to complement other campus resources, this program helps participating students to adjust to the university experience, to identify educational goals, to establish or improve their academic performance, and to work through the challenges of university life. Phone 208/885-6746. For more information, see "Student Support Services" in part 2. Student Support Services is located on the third floor of the Idaho Commons.

**Tutoring and Academic Assistance Center**. See "Tutoring and Academic Assistance Center" in part 2.

**Writing Center**. The English Department offers peer tutoring assistance in writing to all UI students. Students can see tutors on a drop-in basis or they can schedule an appointment by calling the center. Writing Center tutors assist students with analyzing writing strengths and weaknesses, developing ideas, and improving focus, organization, grammar, and punctuation. Tutors do not proofread or edit papers, write papers for students, grade papers, or speculate on grades papers will receive. The Writing Center offers weekday, evening, and weekend hours; stop by or call the Writing Center (208/885-6644) for information and a schedule of hours. The Writing Center is located on the third floor of the Idaho Commons.

## Career Decision-Making and Information

Many students at UI are exploring major and career options and can benefit from the university's career-related programs. For a description of these programs, see "Career-Related Services" in part 2.

## Child Care Services

The Early Childhood Learning Center, located on the edge of campus, offers childcare, early schooling, and after school programs for children through 12 years of age. Accredited by the National Academy of Early Childhood Programs, the Early Childhood Learning Center ensures a high quality program, which provides a safe and nurturing environment while promoting the physical, social, emotional, and intellectual development of young children. Call 208/885-6414 for information.

The Margaret Ritchie School of Family and Consumer Sciences Child Development Laboratory provides childcare opportunities for preschool children. Call 208/885-6332 for information.

## Computer Education

Re-entry students may find that they need to acquire or sharpen computer skills in order to complete class assignments. The Office of Enrichment Programs (885-6486) offers workshops in computer skills, for a nominal fee.

## Counseling Services

**Individual and Couples Counseling.** The university's Student Counseling Center offers students counseling for personal, educational, or vocational concerns; couples counseling is also provided. Student Counseling Center services are free to full-time students and with some limitations to spouses. The center also provides assessment and testing for learning disabilities; a fee is charged for this service. The Student Counseling Center is located in UCC 309, phone 208/885-6716.

**Family Counseling**. The Family and Children Services Office, at 200 South Almon Street in Moscow, provides family counseling on a sliding-scale fee basis to families with children under 18, for child-centered problems. Call 208/882-2432 for information.

## Credit for Life Experiences

Students who have university-level knowledge or competence gained from work, community service, travel, or private study may be awarded lower- or upper-division credit for this knowledge. See regulation I, "Other Credit Opportunities" in Part 3 for information on earning credit for experiential learning.

## Disabled Student Services

See "Office of the Dean of Students" in part 2.

## Financial Aid Information

Nontraditional/re-entry students who have worked the year before enrolling at UI should visit the Office of Student Financial Aid Services to discuss possible special circumstances concerning their financial aid eligibility. The office is located on the south end of the Student Union Building; phone 208/885-6312. For a complete description of the Office of Student Financial Aid Services, see part 2.

## Finding Employment

**On-Campus Employment.** The Student Employment Office, on the first floor of the Student Union Building, assists students to find on-campus jobs; phone 208/885-4500. Information about on-campus employment is also available at the Human Resource Services Office, 415 West 6th Street, phone 208/885-3595.

**Off-Campus Employment**. The Idaho Department of Employment Office is located at 221 East 2nd Avenue, phone 208/882-7571.

## Health Services

The university offers health care to full- and part-time students, student spouses, and dependents. See "Student Health Service" in part 2. For information about community health services, contact the Latah County Health Department Office, 208/882-7506.

## Housing for Nontraditional/Re-entry Students

**On-Campus Living**. See "University Residences" in part 2 for information on residence halls, graduate student housing, and family housing.

**Off-Campus Living**. Moscow offers a variety of off-campus housing options. Information sources for off-campus housing include: (1) the Off-Campus Housing List, published weekly by ASUI (UI's student government) and available at the Student Union Building, phone 208/885-6331, and (2) Moscow's daily paper, the *Moscow-Pullman Daily News*, phone 208/882-5561.

## Recreational and Social Opportunities

The university offers nontraditional/adult students many opportunities to meet and share interests with other students.

**On-Campus Living Groups.** Students living in the residence halls or university apartment complexes are invited to participate in social and educational events organized by Residence Life staff members.

**Women's Center.** The Women's Center provides many programs and services to students (see "Women's Center" in part 2). The Women's Center hosts an orientation reception at the beginning of each semester for nontraditional/re-entry students. In addition, the Women's Center provides a gathering place for nontraditional students to meet each other, study, participate in a weekly noon discussion group, rest, care for infants, or to learn that they are not the only student over 30. The center also co-sponsors projects with other organizations to expand the public's awareness and knowledge of concerns and issues related to gender equity. The Women's Center is located mid-campus, on Line Street, and the phone number is 208/885-6616.

**College and Department Organizations.** Each of the university's colleges and departments sponsors clubs and honoraries for students in specific majors or interest groups. Contact college or department offices for information.

**Student Union Activities.** The Idaho Commons and Student Union organizes many programs and activities for students and their families. See "Recreational, Social, Extracurricular, and Co-curricular Activities" in part 2.

**Recreational Facilities.** Campus recreational facilities include the Kibbie-ASUI Activity Center, indoor and outdoor tennis courts, a climbing wall, golf course, and two swimming pools.

## Veterans' Services

See "Office of the Dean of Students" in part 2.

# International Programs

The International Programs Office (IPO) has campus-wide responsibility for international activities, including international student recruitment, student and faculty exchanges, intensive English language training, and long- and short-term study abroad, and serves as a liaison with the community regarding international interests. IPO also acts as a clearinghouse for international education activities, training, development programs, and research agreements, and for faculty and student Fulbright scholarships, and provides support for international activities in the colleges. IPO is located in 216 Morrill Hall, telephone 208/885-8984; fax 208/885-2859; e-mail ipo@uidaho.edu.

## International Students

International students are an integral part of the ethnic diversity of the University of Idaho. Representing more than 80 countries from around the world, international students contribute significantly to the rich cultural atmosphere of UI.

International student services are provided by international student advisors (ISAs) in IPO. All matters pertaining to students' status with the U.S. Immigration and Naturalization Service (INS) in the Department of Justice and the Exchange Visitor Program of the Department of State are handled by the ISAs, and they also serve as official liaisons between students and their consular offices or sponsoring agencies. ISAs are involved with the progress of international students at every stage of the educational process, and students are encouraged to visit an ISA regularly to discuss concerns or questions related to educational, financial, or cultural adjustments.

Once a student has been admitted, general information is provided about what to bring to the U.S., the U.S. educational system, and housing. A mandatory orientation before classes begin answers initial questions and provides new students with information and skills to succeed in their academic programs as well as tips on cultural adjustment. Community contacts are arranged through the International Friendship Association. The Students' International Association, a group of U.S. and international students, sponsors additional social, cultural, and educational activities.

**Insurance.** International students holding nonresident alien status must either purchase health and extended accident insurance for themselves and all accompanying dependents or document coverage by equivalent insurance as part of their obligation to establish proof of financial responsibility for expenses incurred while attending the university. Failure to obtain and maintain the required insurance may subject students to sanctions, up to and including disenrollment. See the insurance section in this catalog for more information.

## American Language and Culture Program

The American Language and Culture Program (ALCP) offers full-time programs in intensive English. Courses are offered throughout the year, with two eight-week sessions during each of the fall and spring semesters and one eight-week session in the summer. The program also offers specialized short-term programs by arrangement.

Students wishing to improve their English or achieve the required level of English language proficiency for admittance to UI can work toward that goal while living on or off the UI campus and attending the American Language and Culture Program (ALCP). The curriculum emphasizes reading, writing, speaking, listening, and grammar skills at levels from beginning to advanced. At the University of Idaho, students who pass Level 5 may use their passing grades as a substitute for the English language proficiency examination at the level of the minimum university requirement. ALCP students take part in special cultural activities and learn about U.S. culture and U.S. university culture.

For more information and/or applications, contact the ALCP coordinator through the International Programs Office, 208/885-5508.

*Applicants to the University of Idaho, please note:* **Deferred admission** may be granted to applicants who qualify academically, but who have not yet met UI's minimum English language proficiency requirement. In deferred status,

students enroll in UI's American Language and Culture Program to achieve their department's English language requirement prior to being granted full admission and commencing their degree programs.

**Concurrent Enrollment.** Concurrent enrollment is available to ALCP students at Levels 5 and 6. With the consent of the ALCP coordinator and the instructor of the course(s), qualified ALCP students may take up to 7 credits of academic course work at the undergraduate and graduate levels while still remaining enrolled full time in ALCP.

## Study Abroad

With access to 185 universities in 50 countries, the University of Idaho has the largest study abroad program in the state of Idaho and one of the most extensive programs in the Pacific Northwest. Each year more UI and other U.S. students take advantage of UI's quality study abroad programs.

With so many study sites throughout the world, students in virtually any field can enhance their UI education as well as chances for future employment. For example, students can study development issues in Fiji, engineering in Sweden, ecology in Costa Rica, or business in Italy. A number of these programs are taught in English so that students without foreign language skills are still able to study abroad. However, those students who are interested in learning a foreign language will find that there are also excellent opportunities for study overseas through one of the university's programs.

Some exchange programs such as Ecole Superiéure de Commerce de Chambéry, and Fachhochschule für Technik und Wirtschaft (Berlin) offer the possibility for students to participate in an internship with a company or agency following their studies overseas. Other programs, such as the University Studies Abroad Consortium, enrich classroom teaching with regularly scheduled field trips to local sites or points of interest.

While program costs vary, in many cases a study abroad experience will cost about the same amount as studying on campus. Students receiving federal or state financial aid may be able to apply their entire award to UI study abroad programs.

UI full-time undergraduate students may also be eligible for International Experience Grants (IEG) created through the Associated Students University of Idaho (ASUI). IEG competitive grants provide funding for students to study abroad each year.

Students may receive credit for study abroad or other experience overseas in the following ways:

1. Residency credit toward baccalaureate degree. Students are registered under the study abroad course number (SA 999). The “Advising - Credit Evaluation Agreement” form must be completed before departure to ensure proper evaluation when the program is completed. Upon receipt of an official transcript, courses are evaluated and recorded as transfer credit. However, credits earned through approved UI programs are included in the residency requirement for baccalaureate degrees.

2. Transfer credit. Students choosing independent study abroad programs must complete a “Financial Aid Consortium/Contract Agreement” form (signed by the study abroad institution and submitted to the Registrar’s Office before departure) for registration to be processed and financial aid to be disbursed. Students are registered under the independent study abroad course number (SA 998). Upon receipt of an official transcript, courses are evaluated and recorded as transfer credit. Credits earned through independent study abroad programs are not included in the residency requirement for baccalaureate degrees.

3. Directed study. Students may plan their own educational experiences abroad, and arrange *in advance* for credit from any appropriate department. This is for education comparable to that gained in other courses of that department, but it may be as general and inclusive as the department will allow.

4. Course challenge. Some courses may be challenged on the basis of knowledge gained abroad. See regulation I-2.

5. Experiential learning. Credit may be awarded to students for knowledge and/or competence gained in foreign travel. See regulation I-2. This option requires the submission of a portfolio demonstrating knowledge and competence.

UI participates in the following study abroad programs:

| Study Abroad Program | Placement Sites | Duration | Grades | Reqd GPA | Program Eligibility | | | | | Other Requirements |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fr | So | Jr | Sr | Grad | |
| Council of International Study Programs | 43 institutions in 34 countries | Semester, year | A-F | 2.50-3.00 | | X | X | X | X | 8-14 cr Foreign language * |
| International Student Exchange Program (ISEP) | 122 institutions in 34 countries | Semester, year | P/F | 2.75 | | X | X | X | X | 14 cr Foreign language* |
| International Studies Abroad | Argentina, Australia, Chile, Costa Rica, France, Mexico, Spain | Semester, year, summer | P/F | 2.50-3.00 | X | X | X | X | X | 3-15 cr Foreign language* |
| University Studies Abroad Consortium (USAC) | Australia, Chile, China, Costa Rica, Czech Republic, Denmark, England, France, Germany, Ghana, Ireland, Israel, Italy, Malta, New Zealand, Scotland, Spain, Thailand | Semester, year, summer | A-F | 2.50-3.00 | X | X | X | X | X | |
| Autonomous University of Guadalajara | Mexico | Semester, year, summer | P/F | 2.50 | X | X | X | X | | |
| Autonomous University of Yucatán | Mexico | Semester, year, summer | P/F | 2.50 | X | X | X | X | X | |
| Brighton University | England | Fall semester | A-F | 2.80 | | | X | X | | PE, dance, sport sci, rec majors |
| Ecole Superiéure de Commerce de Chambéry | France | Semester, year, summer | P/F | 2.50 | | X | X | X | | 14 cr French, some business & econ |
| Fachhochschule für Technik und Wirtschaft Berlin (FHTW) | Germany | Semester, year | P/F | 2.50 | | | X | X | | Some business & econ |
| Haagse Hogeschool | Netherlands | Semester, year | P/F | 2.50 | | X | X | X | | Some business & econ |
| Institut International d'Etudes Francaises | France | Semester, year, summer | P/F | 2.50 | X | X | X | X | | |
| KCP International Language Institute | Japan | Semester, year, summer | A-F | 2.50 | X | X | X | X | | |
| Luleå University | Sweden | Semester, year | P/F | 2.50 | | | X | X | X | Engr, computer sci, business majors |
| Monterrey Tec | Mexico | Semester, year, summer | A-F | 2.50 | X | X | X | X | | |
| The Mountain Institute | Nepal | Summer | A-F | 2.50 | X | X | X | X | X | |
| Nagasaki Gaidai | Japan | Semester, year | A-F | 2.50 | X | X | X | X | | |
| Pontificia Universidad Católica del Ecuador (PUCE) | Ecuador | Semester, year | P/F | 2.50 | | X | X | X | | 8 cr Spanish |

| Study Abroad Program | Placement Sites | Duration | Grades | Reqd GPA | Program Eligibility | | | | | Other Requirements |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fr | So | Jr | Sr | Grad | |
| Sann-Nepal | Nepal | Semester, year, summer | A-F | 2.50 | X | X | X | X | | |
| Schiller International University | England, France, Germany, Spain, Switzerland | Semester, year, summer | A-F | 2.50 | X | X | X | X | X | |
| Southern Denmark University | Denmark | Semester, year | P/F | 2.50 | | X | X | X | X | |
| Universidad de Zaragoza | Spain | Semester, year | P/F | 2.50 | | X | X | X | | 14 cr Spanish |
| Växjö University | Sweden | Semester, year | P/F | 2.50 | | X | X | X | | Comm, educ, political sci, business majors |
| ***** Not all sites require knowledge of foreign languages. | | | | | | | | | | |

All students who participate in UI study abroad programs do not pay their normal UI registration fees. Instead, they pay the program cost for each semester they are abroad.

Students participating in study abroad programs are required to be registered as full-time students unless special arrangements have been made.

For more information on study, work abroad, or volunteering overseas, call or visit the study abroad coordinator in 209 Morrill Hall (208/885-4075). Information about the following programs can also be obtained from exchange program coordinators in the departments listed below:

Brighton: HPERD (PE Bldg 108, 208/885-2189)
Chambéry: Foreign Languages and Literatures (Admin 308A, 208/885-5288)
FHTW: Business (Admin 342A, 208/885-7342), and Foreign Languages & Lit (Admin 308A, 208/885-5288)
Haagse Hogeschool: Business (Admin 342A, 208/885-7342)
Institut International d'Etudes Francaise: Foreign Languages & Lit (Admin 308A, 208/885-7756)
Monterrey Tec: Business (Admin 342A, 208/885-7342), and Foreign Languages & Lit (Admin 308A, 208/885-5288)
The Mountain Institute: Resource Recreation & Tourism (CNR 19M, 208/885-7911)
PUCE: Foreign Languages & Literatures (Admin 308A, 208/885-5288)
Schiller International University: International Studies Program (CEB 4, 208/885-6527)
Southern Denmark: Business (Admin 342A, 208/885-7342)
Yucatán: Foreign Languages & Lit (Admin 308A, 208/885-5288), and MMBB (Gibb 132, 208/885-6001)
Zaragoza: Business (Admin 342A, 208/885-7342), and Foreign Languages & Lit (Admin 308A, 208/885-5288)

# General Requirements and Academic Procedures

The following procedures and regulations have been adopted to help students, faculty members, and administrators carry out UI's overall academic program successfully. Students have the ultimate responsibility for meeting university, college, and departmental graduation requirements and academic procedures. Students, with the help of faculty advisors, should check their records each time they prepare to register to ensure that they are correctly and systematically fulfilling their degree requirements. It is the responsibility of advisors, major professors, and deans to assist students in understanding and complying with these requirements and procedures. The registrar assists by checking students' records for compliance with the regulations in this section of the catalog. Requests to waive curricular requirements, academic provisions, or academic standards should be presented to the appropriate department and/or college.

Students may petition the appropriate committee for exceptions to the administrative and academic regulations of UI. Petitions are submitted to one of the following committees depending on the nature of the petition.

**Academic Petitions Committee.** Student petitions for exceptions to the requirements and procedures in this catalog section (part 3) should be presented to the Academic Petitions Committee on forms available in college offices.

**Academic Hearing Board.** This committee hears student appeals from decisions made by college authorities concerning, but not limited to, such matters as (1) eligibility for advanced placement or credit by examination, (2) objectivity or fairness in making, administering, and evaluating class assignments, (3) maintenance of standards for conscientious performance of teaching duties, and (4) scheduling of classes, field trips, and examinations. The board does not hear appeals concerning requirements or regulations of the College of Graduate Studies or the College of Law.

**Administrative Hearing Board.** Students submit appeals to the Administrative Hearing Board on administrative decisions in such matters as residence status for tuition purposes, granting of student financial aid, and assessment of fees or charges (except in connection with parking regulations), and disputes involving interpretation and application of policies concerning such matters as student records, smoking, and treatment of disabled persons.

Appeals from decisions of the Academic Petitions Committee and the Academic Hearing Board are submitted to the provost. If the provost concurs with the body whose decisions was appealed, the appellant then may appeal to the president and regents if the president and regents consent to hear the appeal.

Decisions of the Administrative Hearing Board may be appealed to the president and regents when they consent to hear such appeals.

## Rights Reserved to the University

Catalogs, bulletins, and course or fee schedules shall not be considered as binding contracts between UI and students. UI reserves the right at any time, without advance notice, to: **(1)** withdraw or cancel classes, courses, and programs; **(2)** change fee schedules; **(3)** change the academic calendar; **(4)** change admission and registration requirements; **(5)** change the regulations and requirements governing instruction in and graduation from UI and its various divisions; and **(6)** change any other regulations affecting students. Changes go into effect whenever the proper authorities so determine and apply not only to prospective students but also to those who are matriculated in UI. When economic and other conditions permit, UI tries to provide advance notice of such changes. In particular, when an instructional program is to be withdrawn, UI will make every reasonable effort to ensure that students who are within two years of completing graduation requirements, and who are making normal progress toward completion of those requirements, will have the opportunity to complete the program that is to be withdrawn.

UI also reserves the right, when a student has failed to discharge any obligation to UI, to deny that student the privilege of reregistering or to withhold the student's records or information based on the records. Students may verify the status of their accounts and be informed of any financial obligation to UI by inquiring at the cashier's window in the Student Union Building.

## A – Matriculation

Applicants for enrollment in any course offered by UI for college credit, except correspondence study, submit personal data and credentials covering all previous academic work. (See "Undergraduate Admission to the University" or "Graduate Admission to the University" in part 2.) After UI has received these credentials and approved the application, registration access is given to the applicant and the applicant's first registration at UI concludes the matriculation process.

## B – Registration

**B-1. Registration Access.** Registration access is given to new students as described above. It is also given to students who were previously enrolled within two years of the term in which they wish to register. Former students who have not been enrolled at UI within those two years must be re-admitted by the Undergraduate or Graduate Admissions Office at least one month prior to the term in which they wish to register. Such students will be required to submit transcripts from any institutions attended since their last registration at UI, and they may also be required to complete a residence questionnaire. Failure to meet the deadline may cause a delay in registration.

**B-2. Admission to Classes.**

**B-2-a.** Instructors do not admit anyone to class whose name does not appear on the class roster or for whom they have not signed an "add" card. UI professors are given the authority to grant or deny access to classes by visiting scholars.

**B-2-b.** Before the beginning of each academic session, students with their advisors' aid complete a trial study list. The information is checked by such intracollege procedures as the student's college may require. Once the advisor's block is removed from an individual student's record, the student registers for classes using the Web registration process. Signed "add" cards are taken to the Registrar's Office for those courses that require permission of the instructor or department. On payment of fees, admission to classes is authorized.

**B-3. Auditing Classes.** Auditing a course consists of attendance without participation or credit. Only lecture classes may be audited. Audited courses are not recorded on a student's permanent record, except as provided in the chart with regulation C-1.

**B-4. Registration for Zero Credit.** Any course offered for credit may be taken for zero credit. The implications of zero credit are:

**B-4-a.** Registrants are expected to do the assigned work and attend class sessions. Grades are received on the same basis as if the course were taken for credit and are entered on permanent records.

**B-4-b.** Students enrolled in a course for zero credit may take it P/F. This is separate from the "pass-fail option" outlined in B-11.

**B-4-c.** Courses taken for zero credit do not fulfill requirements.

**B-4-d.** Zero-credit grades have no effect on a student's grade-point average. Neither do they affect academic eligibility, disqualification, or reinstatement.

**B-4-e.** Students enrolled for zero credit count as regular registrants for statistical purposes, such as listing course enrollments, computing instructors' loads, and determining departmental services.

**B-5. Independent Study Courses.** A student enrolled in the regular program is permitted to carry independent study courses for college credit only with the prior written approval of his or her academic dean. Credit for correspondence-study courses will not be accepted without such approval.

**B-6. Registration for Courses Without Completion of Prerequisites.** Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

**B-7. Registration of Lower-Division Students in Upper-Division Courses.** All academic programs give priority in the first two years to meeting the general requirements for the appropriate degree and acquiring the foundation for advanced study; therefore, lower-division students may not take upper-division courses. Exceptions may be made for students who have fulfilled the prerequisites and who are well prepared in their field of study. In such cases, the instructor may, with the concurrence of the student's advisor and academic dean, authorize the exception.

**B-8. Registration of Undergraduate and Nondegree Students in Graduate Courses.** Undergraduate and nondegree students may register in graduate courses under the conditions outlined in the College of Graduate Studies section of part 4 with the prior written approval of the instructor of the course, the student's advisor, and the vice president for research and graduate studies.

**B-9. Registration of Students with Baccalaureate Degrees as Undergraduates.** To register as undergraduates, students with baccalaureate degrees must secure the permission of the dean of the undergraduate college and file a statement with the registrar indicating that they understand that the work will not be classified as graduate work and cannot be used toward a graduate degree at a later date. (See J-7-b and c.)

**B-10. Registration for Accelerated and Other Short Courses.** Students may register for accelerated and other short courses at any time up to and including the starting date of the course without petition.

**B-11. Pass-Fail Option.**

**B-11-a. Undergraduate Students.**

**(1)** After consultation with their advisors, undergraduates who have a cumulative grade-point average of 2.00 or higher are permitted to enroll in one course a semester under this P/F option. (The grade-point requirement is not applicable to students who are taking university-level courses for the first time.) This procedure is separate from taking courses that are regularly graded P/F. Within the limitations specified above, an undergraduate may enroll under the pass-fail option in any course EXCEPT: (a) courses listed by number and title in the student's major curriculum as printed in part 5; (b) courses taken to meet the distributional requirements of the college or curriculum, unless allowed for P/F enrollment by the department in which the student is majoring; (c) courses in the major subject field; and (d) courses in closely related fields that are excluded from this option by the student's department. (See B-11-d for "Reporting of Grades.")

**(2)** Students in officer education programs (OEP) may enroll under this regulation in courses required because of their affiliation with the OEP ONLY with the permission of the administrator of the OEP department concerned.

**(3)** A maximum of 12 credits earned in courses under this regulation may be counted toward a baccalaureate degree.

**B-11-b. Graduate Students.**

**(1)** With the approval of the major professor concerned (or advisor in the case of an unclassified student) and the vice president for research and graduate studies, graduate students may enroll in a limited number of courses under this P/F option. This procedure is separate from taking courses that are regularly graded P/F.

**(2)** Courses that may be taken by graduate students under this regulation are: (a) any course not in the student's designated major and (b) any course required to remove a deficiency or to provide background for the student's program, unless the major department stipulates that such deficiency courses must be taken on a regular-grade basis and completed with an A or B.

**(3)** Of the minimum number of credits required for a degree, no more than three credits in a master's or specialist program or nine in a doctoral program may be taken under this P/F option.

**(4)** To have P recorded for courses taken under this regulation, a graduate student must earn a C or above. A grade of D will be converted to an F on the student's records.

**(5)** An unclassified student may enroll for courses under this option with the approval of his or her advisor (if assigned) and the vice president for research and graduate studies. If, however, at a later date an unclassified student is admitted to a degree program, the above regulations apply and no changes to regular letter grades will be permitted.

**B-11-c. Adds, Drops, and Changes.** Students may add or drop a P/F option course in the same manner as a regular course, and they may change from P/F to regular-grade classification, or vice versa, if they do so no later than the deadlines stated in regulation C and the academic calendar. Students may make these changes by securing the signatures of the advisor or major professor and dean concerned.

**B-11-d. Reporting of Grades.** Instructors are not notified as to which students are enrolled in courses under this P/F option. Grades are reported in the same manner as grades in courses taken on a regular-grade basis. The registrar is responsible for converting Cs or above to Ps on students' records and, for graduates, Ds to Fs. Grades of D reported for undergraduates are recorded on students' records and are not converted.

**B-12. Registration for Fewer Credits than Authorized.** Students may register for a particular course for fewer credits than indicated in the Time Schedule (they may also register for zero credit under the conditions outlined in B-4); likewise, departments may list courses in the Time Schedule for fewer credits than the number authorized by this catalog.

## C – Changes in Registration

**C-1.** Students may change their registration as provided in the "Semester Schedule for Changes in Registration" accompanying this regulation. All registration changes are effective on the date they are filed with the registrar. Students may not drop a course by simply staying out of class. Undergraduate students are expected to obtain the signature of their advisor on the drop form.

## Semester Schedule for Changes in Registration

See Academic Calendar in the front of the catalog for dates. The schedule for changes in enrollment in accelerated or short courses during summer session is prorated, based on the number of class meeting hours (see notes below). The calendar in the Summer Bulletin lists the dates for Summer Session.

| DESIRED CHANGE | First 6 days of classes* | 7th day of class through 4th week* | 5th week to end of 2nd week following midterms** | After end of 2nd week following midterms*** |
|---|---|---|---|---|
| **Drop course** | Drop course on-line, if permitted (see regulations C-1 and C-2). No grade recorded and credits do not count in 20-credit limit for withdrawal.**** | | Signature of advisor required for undergrad students. File form with registrar. Grade recorded as W (withdrawal) and counted in 20-credit limit for withdrawal.**** | For compelling reasons only, upon successful petition to Academic Petitions Committee (file petition through dean's office). Grade recorded as W (withdrawal) and counted in 20-credit limit for withdrawal.**** |
| **Add course.** (regular credit or audit) | Add course on-line. | Signatures of instructor and advisor required for undergrad students. Signature of instructor required for grad, law, and nondegree students. File form with registrar. | | |
| **Change course section** | Change section on-line. | Permission of instructor of new section is required. File form with registrar. | | |

| DESIRED CHANGE | First 2 weeks of classes* | 3rd and 4th weeks* | 5th week to end of 2nd week following midterms** | After end of 2nd week following midterms*** |
|---|---|---|---|---|
| **Change from regular credit to audit.** | File form with registrar. No grade recorded. | | Signatures of instructor and advisor required for undergrad students. Signature of instructor required for grad, law, and nondegree students. File form with registrar. Grade recorded as W and counted in 20-credit limit for withdrawal. | Not permitted |
| **Change from audit to regular credit.** | File form with registrar. | Signatures of instructor and advisor required for undergrad students. Signature of instructor required for grad, law, and nondegree students. File form with registrar. | | |
| **Change from regular grading to pass-fail or reduce number of credit in course.** | File form with registrar. | | Not permitted. | |
| **Change from pass-fail to regular grading.** | File form with registrar. | Not permitted. | | |
| **Register late.** | Register on-line. Pay late-registration service charge. | File form with registrar. Pay late-registration service charge and fee. | For compelling reasons only, upon successful petition to Academic Petitions Committee (file petition through dean's office). Pay late-registration service charge and fee. | |
| **Withdraw from university.** (see regulation G) | Obtain form from Dean of Students, academic deans, or Registrar's Office. File form in academic dean's office or Registrar's Office. No grade recorded. | | Obtain form from Dean of Students, academic deans, or Registrar's Office. File form in academic dean's offices or Registrar's Office. Dean's signature required for law students. Grade recorded as WU (withdrawal from university) and credits do not count in 20-credit limit for withdrawal.**** | For compelling reasons only; complete medical withdrawal or petition the Academic Petitions Committee (file petition through dean's office). Grade recorded as WU (withdrawal from university) and credits do not count in 20-credit limit for withdrawal.**** |
| **Change undergraduate curriculum/major.** (Grad students consult the College of Graduate Studies section in Part 4) | Anytime. File form with registrar. The request to change must be approved by the dean of the college in which the new curriculum is offered. If the new curriculum is in a different college, students must meet the admission requirements of that college. Students must also see the dean of the college they are transferring out of for counseling and information purposes (not for permission to transfer). A UI cumulative grade-point average of 2.00 or better is normally required to transfer from one UI college or another; however, any student may transfer to the General Studies Program by consulting the director of the program (signatures certify that the student's academic records have been forwarded). The change of curriculum is official when the student files the completed form with the registrar. | | | |

* For accelerated or short courses, the deadline is when no more than 12.5% of the class-meeting hours have been completed.
** For accelerated or short courses, the deadline is after 12.5% but less than 60% of the class-meeting hours have been completed.
*** For accelerated or short courses, the deadline is after 60% of the class-meeting hours have been completed.
**** In the College of Law, consult the dean's office for information concerning grades assigned when students withdraw from law courses after the 2nd week of classes.

**C-2. Credit Withdrawal Limitation.**

**C-2-a.** The number of credits that may be dropped and recorded on the student's permanent record is limited to 20 credits during a student's undergraduate career at UI. Petitions must be submitted to the Academic Petitions Committee to drop more than 20 credits during a student's undergraduate career at UI.

**C-2-b.** If a student attempts to drop a course that would bring the total credits he or she has dropped above 20, the student will not be allowed to do so. If a student attempts to drop two or more courses simultaneously and together they would bring his or her total credits dropped above 20, the student will be asked, through the dean's office, to submit a revised request to drop only one course or a combination of courses that would not cause the limitation to be exceeded. If the student cannot be reached or fails to submit a revised request, the registrar will record dropping the course or combination of courses that bear the highest course numbers and not cause the limitation to be exceeded; the dropping of the remainder will not be allowed.

**C-3. Adding a Course.** As shown in the chart accompanying this regulation, a course may be added on line during the first six days of classes. Beginning with the seventh day of classes, the student must file a form with the registrar that includes the signature of the instructor (and the advisor for undergraduate students). A course may be added with permission as long as the number of instructional weeks left in the semester (not including final exam week) equals or is greater than the number of credits for the course.

## D – Credit and Continuing Education Unit

**D-1. Unit of Credit Defined.** One unit of credit represents what a typical student might be expected to learn in one week of full-time study (40-45 hours including class time and preparation). Each course is evaluated by a system of credits related to time spent in class, lab, study-preparation, or field investigation. A semester credit is expected to require a total of three hours of scholarly activity each week. Ordinarily one 50-minute hour of class attendance is scheduled for each credit, but any combination of class attendance, lab, study-preparation, or field investigation may be arranged. Credit for workshops and similar short courses is granted on the basis of one semester credit for at least 45 hours of scholarly activity. Exceptions to this policy for undergraduate courses must be approved by the University Curriculum Committee. Exceptions for graduate courses must be approved by the Graduate Council and the University Curriculum Committee.

**D-2. Credit-Load Limitations.** (Also see J-5.)

**D-2-a. Fall and Spring Semester, and Summer Session.**

**(1)** During the Fall and Spring, an undergraduate student may register for no more than 20 credits in a semester. This number may be increased to 22 with specific written approval by his or her academic dean. Registration for more than 22 credits (except for students enrolled in the WAMI Medical Education Program) is permitted only on approval of a petition to the Academic Petitions Committee (petition forms are available in deans' offices). During the Summer Session, an undergraduate student may register for no more than 18 credits. See the College of Graduate Studies section of part 4 for the credit limitation for a graduate student who is not a graduate assistant.

**(2)** Registration for courses with conflicting or overlapping meeting times is allowed only with the approval of the instructor of each affected course.

**D-2-b. Graduate-Student Appointees.** A graduate assistant may register for no more than 12 credits in a semester or 6 credits in an eight-week period. On the written recommendation of the employing dean and approval by the vice president for research and graduate studies, an appointee is permitted to register for more than 12 credits in one semester but not more than an aggregate of 24 credits during two successive academic-year semesters.

**D-2-c. Full-Time Employees.** A full-time UI employee may register for no more than six credits in a semester or three credits during the Summer Session. Written approval by the employee's departmental administrator and dean or director must accompany the registration form.

**D-2-d. Nondegree Students.** A nondegree students may register for no more than 7 credits each semester and may complete a maximum of 32 semester credits. Students on official UI exchange programs are not limited to 7 credits each semester. International exchange students must take 12 or more credits. Upon completion of 32 semester credits, the student must either be admitted as a degree-seeking student at UI or submit a letter of appeal to continue as a nondegree student.

**D-2-e.** Under Idaho State law, eligible high school students are given the opportunity to enroll in University of Idaho undergraduate courses and receive both college credit and credit towards high school graduation while still enrolled in high school. The number of credits for which a dual enrollment student may register in a given semester is determined by the high school counselor who must sign the enrollment form. However, the credit load limitations that apply to undergraduate students also apply to dual enrollment students.

**D-3. Transfer Credit.** Credit is accepted for work completed in accredited institutions of higher education as provided in the regulations covering the admission of transfer students. (See "Transfer Admission Requirements" in part 2; also see E-4 and J-5.)

**D-4. Review and Prerequisite Courses.** Students will not receive credit for courses taken in review or for courses that are prerequisites of courses they have already completed in the same subject area. Exceptions: 1) As stated in I-1, 2) Students who transfer in a course for which the UI requires Biol 111 or 112 as a prerequisite (but who have not yet taken Biol 111 or 112), may take Biol 111 and 112 for credit.

**D-5. Continuing Education Unit.** Learning activities for which regular university-level credits are not awarded may be evaluated by a system of uniform continuing education units. Such units are granted in accordance with the following guidelines, which are set forth by the (national) Task Force on the Continuing Unit: A continuing education unit is expected to require 10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instructors. Continuing education, as used in this definition, includes all instructional and organizational learning experiences in organized formats that impart noncredit education to post-secondary-level learners. These properties of continuing education may be applied equally under the system regardless of the teaching-learning format, program duration, source of sponsorship, subject matter, level, audience, or purpose. The number of units to be awarded is determined by considering the number of contact hours of instruction, or the equivalent, included in the educational activity. Reasonable allowance may be made for activities such as required reports, lab assignments, field trips, and supervised study.

## E – Grades

### E-1. Grading System.

**E-1-a.** For purposes of reporting and record, academic work is graded as follows: A-superior; B-above average; C-average; D-below average; F-failure; I-incomplete work of passing quality (see regulation F); W-withdrawal; WU-withdrawal from the university; P-pass (see below); IP-in progress (see E-2); N-unsatisfactory and must be repeated (used only in Engl 090, 101, and 102 and Chem 050); S-satisfactory (used only in CEU courses).

**E-1-b.** Grades of P may be reported at the option of the department on a course-by-course basis in noncompetitive courses such as practicum, internship, seminar, and directed study. Grades of P are also reported in courses carrying the statement, "Graded P/F," in the course description. In courses in which Ps are to be used, the method of grading will be made known to the students at the beginning of the semester, and the grading system will be uniform for all students in the courses, except as provided in B-4-b. Grades under the pass-fail option are not affected by this regulation because the conversion of the regular letter grade is made by the registrar after instructors turn in the class rosters.

**E-1-c.** Midsemester grades in undergraduate courses must also conform to the above regulations. It is permissible to report Ps at midsemester ONLY in courses that have been approved for grading on this basis.

**E-2. IP Grades.**

**E-2-a. Grades in Undergraduate Senior Thesis or Senior Project.** The grade of IP (in progress) may be used to indicate at least minimally satisfactory progress in undergraduate courses such as senior thesis or senior project that have the statement "May be graded IP" in the course description. When the thesis or project is accepted, the IP grades are to be removed (see E-2-c). Grades of IP in undergraduate courses are considered to represent grades of at least C or P. If, in any given semester, the instructor considers the student's progress unsatisfactory, an appropriate letter grade (D or F) should be assigned for that semester.

**E-2-b. Grades in Graduate Research Courses.** The grade of IP (in progress) may be used in courses 500 (Master's Research and Thesis), 599 (Research), and 600 (Doctoral Research and Dissertation). When the thesis, dissertation, or other research document is accepted, or when a student ceases to work under the faculty member who is supervising his or her research, the IP grades are to be removed (see below). Grades of IP in graduate courses are considered to represent at least grades of B or P. If, in any given semester, the faculty member supervising the student's research considers the student's progress unsatisfactory, a regular letter grade (C, D, or F) should be assigned.

**E-2-c. Removal of IP Grades.** Departments may use on a department-wide basis either the P/F grading system, or regular letter grades, as well as P, when removing the previously assigned IP grades (e.g., a student who enrolled for six credits in course 500 one semester, four credits another semester, and five credits an additional semester could have 15 credits of IP grades removed with different grades for each of the blocks of credit registered for each semester, such as six credits of A, four credits of B, and five credits of P).

**E-3. Grades in Law Courses.** For additional provisions applicable to grades in law courses, see the College of Law section in part 4.

**E-4. Computing Grade-Point Averages.** Grades are converted by assigning the following number of points per credit for each grade: A-4, B-3, C-2, D-1, F-0. In computing the grade-point average, neither credits attempted nor grade points earned are considered for the following: courses graded I, IP, P, S, W, WU, or N, correspondence courses, continuing education units, credits earned under regulation I, or courses taken at another institution. Credit earned at non-U.S. institutions is recorded as pass (P) or fail (F), except for some courses taken through an approved study abroad program.

[The UI considers only the Institutional grade-point average official. Although both institutional and overall grade-point averages are printed on transcripts, the overall grade-point average (which includes transfer courses) is informational only. To calculate a grade-point average divide the *Quality Points* (course credits times the points assigned for the grade earned) by the *GPA Hours* (course credits attempted not including grades of I, IP, P, W, WU, or N). *Earned Hours* indicate the total number of semester credits successfully completed (course grades of A, B, C, D, or P earned). Grades of P are included in *Earned Hours* but do not earn any quality points; grades of F are included in *GPA Hours*, but not in *Earned Hours*.]

**E-5. Replacing Grades.**

**E-5-a.** Some courses are listed in this catalog as "repeatable" (i.e., the credits listed for the courses show a maximum number of credits that may be earned or show "cr arr" or "max arr" indicating that the courses may be repeated for credit without restriction as to maximum). Other courses show one credit entry for the course (e.g., "1 cr," "2 cr," etc.) and may be taken only once for credit (see procedure for repeating to replace a grade below). Students, however, may repeat such "nonrepeatable" courses for zero credit. [See the section entitled "Credit Designations" at the beginning of Part 6 of this catalog for more information.]

**E-5-b. Replacing a Grade by Repeating a Course.** A student who has received a D or F in a course at UI or elsewhere may repeat the course at UI in an effort to replace the grade once, provided a more advanced course in the same subject field for which the first course is a prerequisite has not been completed in the meantime. Although all grades remain on the record, all grades beginning with the first repeat are averaged for grade point purposes. (See the College of Law section in part 4 for the exception to this regulation applicable to students in that college.)

**E-5-c. Credit Repeat-to-Replace-Grade Limitation.** The number of credits that may be repeated to replace a grade is limited to 20 credits during a student's undergraduate career at UI. Petitions must be submitted to the Academic Petitions Committee to repeat to replace a grade beyond the 20-credit limit during a student's undergraduate career at UI.

[Note: Since Fall Semester 1998, a student who repeats a course to replace a grade of D or F does so as if he or she is taking the course for the first time. In accordance with E-5-b, if the student repeats the course again, the grade earned by that repeat is the one used in the calculation of the grade-point average. Any repeats to replace D or F grades before the Fall Semester 1998 are not included in the 20-credit maximum stipulated in E-5-c.]

**E-6. Reports of Grades and Grade Corrections.** Grades are reported to the registrar for all courses at the end of each academic session and at midsemester for undergraduate courses (see deadlines in the academic calendar). The assignment of grades and corrections of grades are the sole prerogative of the instructor and are reported by the instructor directly to the Registrar's Office via the UI Faculty Web. All grades except I and IP (see regulation F and E-2) are considered final when assigned by an instructor at the end of a term. An instructor may request a grade correction when a computational or procedural error occurred in the original assignment of a grade. No final grade may be revised as a result of re-examination or the submission of additional work after the close of the semester. Grade corrections must be processed within one year of the end of the term for which the original grade was assigned. In the event the instructor leaves the university, the departmental administrator may assign the final grade.

## F – Grades of "Incomplete"

**F-1.** A grade of "Incomplete" is assigned only when the student has been in attendance and has done passing work up to a time within three weeks of the close of the semester, or within one week of the close of the summer session. It may be assigned only upon agreement of the student and course instructor when extenuating circumstances make it impossible for the student to complete course requirements on time (Extenuating circumstances include serious illness, car accidents, death of a family member, etc. It does not include lateness due to procrastination, the student’s desire to do extra work to raise his/her grade, allowing a student to retake the course, etc.). Graduate students on probation, see College of Graduate Studies section on Probation, Disqualification, and Reinstatement (Part 4). If a grade of "Incomplete" is submitted, the instructor will assign a reversion grade in the event the missing work is not completed. The instructor must also specify conditions and requirements for completing the deficient work, as well as any deadline shorter than the maximum time period allowed in F-2. At the end of each semester, the Registrar’s Office will send an Incomplete Grade Report (IGR) to departmental administrators detailing every I grade submitted by their faculty that semester and the conditions for student completion.

**F-2. Completion of "Incomplete" Grades.** Final grades for incompletes received in the Fall semester or Intersession, must be assigned by the last day of the following Summer semester. Final grades for incompletes received in the Spring semester or Summer Session, must be assigned by the last day of the following Fall semester. When a student has completed the deficient work, the instructor will assign a final grade. An incomplete that is not completed within the time limit specified above would automatically be changed to the reversion grade assigned by the instructor at the time the incomplete was submitted. Instructors may assign a final grade anytime within the time period specified above. In the event the instructor leaves the university, the departmental administrator may assign the final grade. An incomplete remains on the student’s permanent record and is accompanied by the final grade (i.e. I/A, I/B, I/C).

**F-3. "Incomplete" Grades on Record at End of Final Term.** A student cannot graduate with a grade of "Incomplete" on his or her record. At the end of the term in which the student will graduate, a grade of "Incomplete" in any UI course on that degree level (undergraduate, graduate, law, etc.) reverts to the grade that the instructor had specified on the on-line grade roster (see F-1). Reverted grades are included in the computation of the student's cumulative grade-point average at graduation. Nonetheless, a student who has graduated may make up the incomplete work within the usual time limit in an effort to raise the grade on the permanent record.

## G – Withdrawal Procedures.

### G-1. Standard Withdrawal Procedures.

**G-1-a.** A student who wishes to withdraw from UI before the end of the second week following midterms may begin the process of withdrawal at his or her college dean's office or the Registrar's Office. Withdrawal forms can be picked up at the Office of the Dean of Students, the college dean's office, or the Registrar's Office. The official last date of attendance is indicated on the form and the request is not official until it is processed in the Registrar's Office. See regulation G-l-b for withdrawal from the university after the end of the second week following midterms.

**G-1-b.** A student is permitted to withdraw from UI after the end of the second week following midterms for compelling reasons only and after approval by the Academic Petitions Committee *or* after completing a medical withdrawal as explained in G-2. Examples of compelling reasons are: serious illness or injury of the student or death or serious illness or injury in the student's immediate family. Petitions for permission to withdraw after the end of the second week following midterms are forwarded *via the student's academic dean* to the Academic Petitions Committee on forms available in department and college offices. If the student's petition is approved, the Academic Petitions Committee will determine the effective date of the withdrawal. (See "Refund of Fees" in part 2.)

### G-2. Medical Withdrawal Procedures.

**G-2-a.** The director of the Student Health Service is authorized to grant or require a student's withdrawal from UI for medical reasons.

**G-2-b. Voluntary Medical Withdrawal.** Students desiring to withdraw from UI for medical reasons will consult the director of the Student Health Service who will evaluate the request. If granted, the dean of students will be notified in writing to process the medical withdrawal.

**G-2-c. Emergency Transfer to Institutional Care.** The director of the Student Health Service is authorized to act as the representative of the president in emergencies that, under Idaho laws, require the transfer of a student to a community or state health facility. The student may be granted a medical withdrawal from UI at the discretion of the director.

**G-2-d. Mandatory Medical Withdrawal.** It is the responsibility of the dean of students to order a medical examination of a student if the dean has reason to believe that the student has a serious medical or psychiatric disability that substantially threatens or interferes with the welfare of the student, other members of the university community, or the educational processes of the university. The dean notifies the student and the director of the Student Health Service that such an evaluation is to be conducted. This process may be started by the director of the Student Health Service for patients under care or counseling by notifying the student and the dean of students in writing.

**(1) Request for Evaluation.** On notification from the dean of students, the director of the Student Health Service requests the student to undergo immediate professional evaluation by the director or the director's designee, or, at the student's request and expense, by a private physician or psychiatrist deemed appropriate by the director. A report of this evaluation is presented to the director with a specific recommendation as to whether a medical withdrawal is warranted.

**(2) Evaluation Conference.** The director of the Student Health Service provides the student written notice of a time and place at which the director and student will confer on the final determination as to mandatory withdrawal. The student may have the assistance of a representative at this conference. The director refers to reports, recommendations, and evaluations pertinent to the case and is empowered to request additional relevant medical or psychiatric examinations of the student.

**(3) Determination of Director.** Based on the evaluation and the conference, the director of the Student Health Service may determine: **(a)** that mandatory withdrawal **is** warranted by the student's medical or psychiatric condition; **(b)** that mandatory withdrawal **is not** warranted by the student's medical or psychiatric condition; or **(c)** that the student may remain enrolled subject to conditions specified by the director. The director transmits this decision in writing to the student and the dean of students. If withdrawal is ordered, the dean will process it.

**(4) Finality of Determination.** Decisions made by the director of the Student Health Service pursuant to these procedures are final.

**(5) Refusal of Evaluation.** If, after a request by the director of the Student Health Service, the student refuses to consult with a physician or psychiatrist, the director will, if practicable, seek the help of the student's family in persuading the student to seek appropriate professional assistance. Should these efforts not result in the student taking the desired action, the director summarizes the steps taken to secure needed information and the reasons for the withdrawal and instruct the dean of students to process the withdrawal. A copy of this order for withdrawal is sent to the student. The dean will process the withdrawal as mandatory, but involuntary.

**(6) Appeal.** A student may appeal to the coordinator of student services either **(a)** to revoke the order of the dean of students for a medical examination or **(b)** in case a procedural error is alleged, to order the determination of the director of the Student Health Service reopened.

**G-2-e.** Any student placed on medical withdrawal may, if appropriate, be informed, in writing, by the director of the Student Health Service, that he or she is eligible to return to UI at a later date on the favorable recommendation of the director. When applying for readmission, the student is responsible for providing the director with evidence of satisfactory treatment of the condition that necessitated medical withdrawal. Medical withdrawals are subject to the same refund rules and procedures as other withdrawals (see "Refund of Fees" in part 2).

**G-3. Grades for Students Who Withdraw.** Grades for a student who withdraws are recorded as provided in C and F-1. A student who withdraws from, or leaves, UI without official approval will receive Fs in all courses in which he or she is registered and for which the grade has not already been assigned.

## H – Final Examinations

**H-1.** The last five days of each semester are scheduled as a final exam week (two-hour exams) in all divisions except the College of Law. The following provisions apply:

**H-1-a.** No quizzes or exams may be given in lecture-recitation periods during the week before finals week. Exams in lab periods and in physical education activity classes, final in-class essays in English composition classes, and final oral presentations in speech classes are permitted.

**H-1-b.** Instructors must meet their classes during the exam period for which they are scheduled in the finals week, either for an exam or for a final class session.

**H-1-c.** Final exams or final class sessions are to be held in accordance with the schedule approved by the Faculty Council and published in the Time Schedule. Instructors may deviate from the schedule only on the recommendation of the college dean and prior approval by the provost or provost's designee.

**H-1-d.** Where exams common to more than one course or section are required, they must be scheduled through the Registrar's Office and are regularly held in the evening.

**H-1-e.** Students with more than two finals in one day are permitted, at their option, to have the excess final(s) rescheduled to the conflict period or at a time arranged with the instructor of the course.

**H-1-f.** Final grades for each course must be filed with the registrar within 72 hours after its scheduled exam period.

**H-1-g.** Athletic contests are not to be scheduled during finals week; further, if a change in the calendar causes a scheduled athletic contest to fall within finals week, every reasonable effort must be made to reschedule the athletic contest.

**H-2.** Students who miss final exams without valid reason receive Fs in the exams. Students who are unavoidably absent from final exams are required to present evidence in writing to the instructor to prove that the absence was unavoidable.

**H-3.** Instructors, with the concurrence of their departments, may excuse individual students from final exams when such students have a grade average in the course that will not be affected by the outcome of the final exam. In such instances, the grade earned before the final exam is to be assigned as the final grade.

**H-4.** Early final exams are permitted for students, on an individual basis, who clearly demonstrate in writing that the reasons for early final exams are compelling (such requests require approval by the instructor and by the administrator of the department and the dean of the college in which the course is offered).

## I – Other Credit Opportunities

**I-1. Credit opportunities for exams/high school courses taken prior to becoming a degree-seeking undergraduate student at UI.**

**I-1-a. College Board Advanced-Placement Exams (AP).** Credit is granted for advanced-placement courses completed in high school in which a rating of 5, 4, or 3 is attained in College Board advanced-placement tests. For details, see Registrar's website, http://www.uidaho.edu/registrar.

**I-1-b. College Level Examination Program (CLEP).** UI grants credit for the successful completion of tests under the College Level Examination Program, as approved for specific courses by UI departments. For minimum scores needed to earn credit, see Registrar's website, http://www.uidaho.edu/registrar.

**I-1-c. Other Exams.** UI grants credit for students who achieve specific scores on the ACT, SAT, and COMPASS exams. For the minimum scores needed to earn credit, see Registrar's website, http://www.uidaho.edu/registrar.

**I-2. Credit opportunities while a degree-seeking student at UI.**

**I-2-a. Challenged Courses (Credit by Examination).** Degree-seeking students may challenge UI lecture and associated laboratory courses (earn credit by examination) as follows:

**(1)** Students must receive permission from the course instructor, from the administrator of the department in which the course is offered, and from his/her academic dean to challenge a course. Applications to challenge a course are available on the Registrar's Website. The application must be signed and the application fee paid to the Student Accounts/Cashiers Office (see part 2 for special fees for extramural credits). The form is then returned to the Registrar's Office. The registrar checks the student's record to confirm if the student is eligible to challenge the course and notifies the instructor or student accordingly.

**(2)** Undergraduates must score C or higher to pass and obtain credit. Graduate students must score A or B to pass and obtain credit. A passing grade is entered as P and is not included in grade-point

computations. The student's account will be charged the appropriate per-credit fee at the time the credits are recorded on the student's transcript (see Part 2 for special fees for extramural credits). If a student does not meet these standards, no entry is made on their record and no per-credit fee is charged to their account.

**(3)** Results of the challenged courses must be forwarded to the registrar no later than the beginning of the last week of the semester.

**(4)** No examinations under this regulation may be conducted during the last two weeks of any academic session.

**(5)** Students are not permitted to challenge a prerequisite course after having completed the advanced course.

**(6)** Credit in courses offered by the College of Law may not be obtained by this procedure.

**I-2-b. Experiential Learning Credit.** With the approval of an ad hoc committee consisting of representatives from the colleges and departments involved (convened by the registrar) and payment of the applicable fees (see Part 2 for special fees for extramural credits), an undergraduate may be awarded lower-division and/or upper-division (100-499 series) credit in recognition of university-level knowledge or competence gained in work and life situations outside of UI's jurisdiction, mass media, and independent reading and study. Examples of work and life situations outside UI's jurisdiction include knowledge or competence gained in business, industry, government, or community agencies; or through travel or private study; or while studying at a proprietary or non-accredited institution. Petitions for such credit must be approved by the student's departmental administrator and academic dean, and must be supported by such evidence as is needed to provide a sound basis for evaluating the student's achievements. Credits granted under this regulation are recorded as experiential learning and a grade of P is assigned. The department through which the degree is to be granted will determine the applicability of credits earned through experiential learning toward the satisfaction of specific degree requirements. (See J-5.) Petition forms for experiential learning credit are available on the Registrar's website, http://www.uidaho.edu/registrar.

**I-2-c. Technical Competency Credit.** Technical competency credits may be gained from experience in areas of concentration related to bachelors degrees in professional-technical education or industrial technology. Grades of P for the successful completion of ITED/PTE 270, 370, 470, PTE 480, and ITED 490-492, are normally recorded on a student's transcript during their last semester or upon completion of all degree requirements. A maximum of 32 credits may be earned in a combination of ITED 270, 370, 470, 490, 491, 492 or PTE 270, 370, 470, 480. Applications and instructions for technical competency credits are available at the Division of Adult, Counselor, and Technology Education. See Part 2 for special fees for extramural credits.

**I-2-d. Vertically Related Course Credit.** With prior approval by the administrator of the department concerned, undergraduate degree-seeking students may bypass an elementary course and enroll in a higher vertically related course. Student with a C or better in the advanced course are eligible to receive credit and a grade of P for the lower vertically related courses in the same subject matter. Vertically related courses are listed at the beginning of each subject in Part 6. Applications to receive credit for vertically related courses are available on the Registrar's website, http://www.uidaho.edu/registrar. See Part 2 for special fees for extramural credits. *Advisors should make sure that students are aware of this opportunity for obtaining credit.*

**I-3.** Students who have completed courses at other institutions after bypassing lower vertically related courses, but have not been awarded credit for those bypassed courses, will be granted such credit on completion of a yet higher vertically related course at UI.

**I-4.** With the exception of experiential learning credit, other credit opportunities (such as those listed in I-2 and I-2) granted by other accredited institutions will be honored on transfer to UI. Students with similar credits from non-accredited educational sources may submit a petition to have the credit reviewed for transfer to UI.

## J – General Requirements for Baccalaureate Degrees

Candidates for baccalaureate degrees must fulfill the following requirements. (See the College of Graduate Studies section of part 4 for the requirements for graduate degrees. See the College of Law section in part 4 for the requirements for the degree of Juris Doctor.)

**J-1. Credit Requirements.**

**J-1-a.** Students must have earned a minimum of 128 credits to be granted a baccalaureate degree from the University of Idaho. Some programs require a higher minimum. For the minimum number of credits required in each degree program, see the major curricula of the various degree-granting units in part 5.

**J-1-b.** A minimum of 36 credits in upper-division courses (numbered 300 or above) is required for a baccalaureate degree.

**J-2. Residency Requirements.**

**J-2-a.** A student must earn a minimum of 32 upper-division credits in UI courses. No credits awarded for independent study, bypassed courses, credit by examination, College Level Examination Program (CLEP), or experiential learning can be counted among these 32 UI credits. Study abroad and student exchange credits may be counted toward this requirement with prior approval by the student's academic department and dean.

**J-2-b.** Candidates for the B.S.Ag.Ec. degree with a major in agribusiness at the University of Idaho Center, Idaho Falls, are exempt from the requirement stated in J-2-a. Instead, they must complete a minimum of 32 of the last 64 credits in courses taught at the University of Idaho Center, Idaho Falls, and they must complete a minimum of 18 of the last 64 credits in courses taught by the University of Idaho.

**J-3. Subject Requirements (Core Curriculum).** A university education is a preparation both for living and for making a living. It offers an opportunity not only to lay the foundations of a career, but also to develop the mind to its highest potential, to cultivate the imagination as well as the power to reason, and to gain the intellectual curiosity that makes education a life-long enterprise. A central component of this preparation is the requirement that a student working toward a baccalaureate degree must complete 30-32 credits of course work in the five categories described below. This requirement is to be satisfied by earning the minimum number of credits specified for each category. (Transfer students have two options for fulfilling this requirement; these are described under "General Education Requirements for Transfer Students" in the Undergraduate Admission section in Part 2 of this catalog) **Courses that have been approved for the fulfillment of the requirement in each category are listed below; students are advised to check with deans' offices for courses that may have been added after the publication of this catalog.** Generally, the approved courses are open to lower-division students and do not have prerequisites. Note: Though a given course may be listed under more than one category, it may be used to satisfy the requirement in only one category; remedial courses may not be used to satisfy any of this requirement. **Degree-seeking students must be enrolled in Engl 090, 101, or 102 in their first semester in residence and in each subsequent semester until they have passed Engl 102. They must also be enrolled in Math 108 or in a course that meets the core requirement in mathematics, statistics, or computer science in their first year in residence and in each subsequent semester until the core requirements in mathematics, statistics, or computer science has been satisfied.**

**J-3-a. Communication (5-7 cr).** The purpose of this requirement is to develop the ability to organize one's thoughts, to express them simply and clearly, to observe the standards and conventions of language usage, and to suit tone to audience. The requirement is proficiency in written English equal to that needed for the completion of UI course Engl 102 and the completion of one additional course in this category.

**Foreign Language.** Students who receive a passing grade in any of the eight foreign language classes included in the core curriculum are expected to develop and demonstrate (1) sufficient communicative competency in a modern foreign language to be able to satisfy basic survival needs and social demands in a non-English speaking culture or, alternately, a grasp of the most basic vocabulary and elementary syntax of classical Greek or Latin and the ability to translate classical Greek or Latin passages of elementary difficulty at sight; (2) a greater awareness of and sensitivity to language, its structure and function as provided through the study of a modern or classical language; and (3) an understanding of fundamental language concepts and, through comparison with a modern or classical language, a more thorough understanding of how one's own language works.

**Public Speaking.** Students who receive a passing grade in Comm 101, Fundamentals of Public Speaking, are expected to develop and demonstrate the ability to make oral presentations in one-on-one settings, small groups, and large groups. Students should be able to demonstrate basic competency in (1) organization and preparation, (2) oral language use and presentation, and (3) addressing audience needs and interests.

**Written English.** Students who receive a passing grade in any of the five English classes included in the core are expected to develop and demonstrate competencies in their writing in (1) organization and development, (2) sentence variety and word choice, and (3) language usage conventions.

The following specific provisions apply to the English composition component:

**(1)** Students who attain a satisfactory score on the College Board English Achievement or Scholastic Aptitude (Verbal) Test or the American College Testing (ACT) English Test will be awarded credit and grades of P for Engl 101 and 102. Also, students who attain a score of 4 on the Advanced Placement Test in English will be awarded credit and a grade of P for Engl 101 and students who attain a score of 5 on the Advanced Placement Test in English will be awarded credit and grades of P for Engl 101 and 102.

**(2)** Students who do not meet the conditions stated in paragraph (1) will be tentatively placed, on the basis of their scores on the tests cited above, in either Engl 101 or 102.

**(3)** UI accepts credits earned in comparable writing courses taken at other accredited institutions. (See credit limitation in J-5-d.)

Chin 101, Chinese First Semester (4 cr)
Comm 101, Fundamentals of Public Speaking (2 cr)
Engl 207, Persuasive Writing (3 cr)
Engl 208, Personal and Exploratory Writing (3 cr)
Engl 209, Inquiry-Based Writing (3 cr)
Engl 317, Technical Writing (3 cr)
Fren 101, Elementary French I (4 cr)
Germ 101, Elementary German I (4 cr)
Grek 341, Elementary Greek (4 cr)
Japn 101, Elementary Japanese I (4 cr)
Latn 101, Elementary Latin I (4 cr)
Russ 101, First Semester Russian (4 cr)
Span 101, Elementary Spanish I (4 cr)

**J-3-b. Natural and Applied Science (8 cr which include two accompanying labs OR 7 cr which include CORE 201 and one course with lab).** The purpose of this requirement is to develop a better understanding of the physical and biological world by learning some of the principles that explain the natural phenomena of the universe, the experimental method used to derive those principles, and their applications.

Study in this area is undertaken as part of the general education requirements in order to promote scientific literacy, that is, the ability to read and understand the science issues being debated in society. Scientific literacy is essential if citizens are to make informed judgments on the wide range of issues that affect their

everyday lives. Students receiving passing grades in the natural and applied science courses of the core curriculum will demonstrate competency in the following areas: (1) knowledge of scientific principles; (2) the ability to write clearly and concisely using the style appropriate to the sciences; (3) the ability to interpret scientific data; (4) the ability to analyze experimental design critically; and (5) the development of laboratory skills.

Biol 102, Biology and Society (4 cr)
Biol 111, Evolution and Diversity of Life (4 cr)
Biol 112, Biological Principles and Mechanisms (4 cr)
Chem 100, Chemistry and the Citizen (4 cr), OR Chem 101, Introduction to Chemistry I (4 cr), OR Chem 111, Principles of Chemistry I (4 cr)
Chem 112, Principles of Chemistry II (5 cr)
CORE 201, Integrated Science (3 or 4 cr)
Ent/Biol 211, Insect Biology (4 cr)
EnvS 101, Introduction to Environmental Science, and EnvS 102, Field Activities in Environmental Sciences (4 cr)*
Geog 100, Physical Geography (4 cr)
Geol 101, Physical Geology (4 cr)
Geol 102, Historical Geology (4 cr)
MMBB 154, 155 Introductory Biology of Bacteria and Viruses (4 cr)*
Phys 100, Fundamentals of Physics (4 cr)
Phys 103, 104, General Astronomy and Lab (4 cr)*
Phys 111, General Physics I (4 cr)
Phys 112, General Physics II (4 cr)
Phys 211, Engineering Physics I (4 cr)
Phys 212, Engineering Physics II (4 cr)

*To be counted toward satisfaction of this requirement, the four full credits (that is, both the lecture course and the accompanying laboratory course) must be completed.

**J-3-c. Mathematics, Statistics, or Computer Science (3 cr).** Mathematical reasoning as a skill and as a theoretical structure has played a crucial role in modern civilization as well as in the everyday lives of individuals. The core curriculum requirement in mathematics, statistics, or computer science should, therefore, foster both an appreciation for the aesthetic and historical dimensions of these areas and a sense of their practical necessity.

Mathematics, statistics, and computer science courses help students develop analytical, quantitative, and problem solving skills by involving them in doing mathematics, statistics, or computer science and by focusing on understanding the concepts of these disciplines.

Students receiving passing grades in mathematics, statistics, or computer science will have: (1) an understanding of key terms and concepts including a historical perspective of their origins and (2) the ability to recognize, analyze, and solve problems.

CS 101, Introduction to Computer Science (3 cr)
CS 112, Introduction to Problem Solving and Programming (3 cr)
Math 123, The Spirit of Mathematics (3 cr)
Math 130, Finite Mathematics (3 cr)
Math 137, Algebra with Applications (3 cr)
Math 143, Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 160, Survey of Calculus (4 cr)
Math 170, Analytic Geometry and Calculus I (4 cr)
Stat 150, Introduction to Statistics (3 cr)
Stat 251, Principles of Statistics (3 cr)

**J-3-d. Humanities (at least 6 cr).**

*Note:* Students must have a combination of humanities and social sciences core courses that meets one of the following combinations:

(1) At least 14 credits in a combination of humanities and social sciences core courses, OR

(2) At least 13 credits in a combination of the 7 credits earned in CORE 101-102 and additional humanities and social sciences core courses, OR

(3) At least 14 credits in a combination of CORE 101, two additional humanities core courses, and two additional social sciences core courses.

The purpose of this requirement is to explore the collective experience of humankind as it is reflected in literature, philosophy, the arts, and history. Each humanities course will be directed toward providing students with: (1) knowledge of key terms relevant to the discipline; (2) knowledge of theories and underlying assumptions relevant to the discipline; (3) knowledge of and ability to analyze the components out of which the works studied are constructed; (4) knowledge of and ability to recognize the historical contexts of works studied, as well as the underlying aesthetic, cultural, philosophical, and social influences; (5) the ability to develop and justify a point of view about matters of value and aesthetic taste among the sometimes-conflicting points of view of others; (6) the ability to acknowledge and critically evaluate divergent points of view; (7) the ability to discuss the subject intelligently and write about it effectively; and (8) the ability to extend the concepts of the course beyond the academic setting.

AmSt 101, American Identities (3 cr) (pilot offering)
AmSt 301, Studies in American Culture (3 cr)
Art 100, Visual Art (3 cr)
CORE 101-102, Core Discovery (7 cr)
Dan 100, Dance in Society (3 cr)
Engl 257 and/or 258, Literature of Western Civilization (3 cr each)
Intr 126, Film and International Culture (3 cr)
MusH 101, Survey of Music (3 cr)
Phil 103, Ethics (3 cr)
TheA 101, Introduction to the Theatre (3 cr)

**J-3-e. Social Sciences (at least 6 cr).**

*Note:* Students must have a combination of humanities and social sciences core courses that meets one of the following combinations:

(1) At least 14 credits in a combination of humanities and social sciences core courses, OR

(2) At least 13 credits in a combination of the 7 credits earned in CORE 101-102 and additional humanities and social sciences core courses, OR

(3) At least 14 credits in a combination of CORE 101, two additional humanities core courses, and two additional social sciences core courses.

Courses in the social sciences provide instruction in the history of human societies and institutions, particularly political and economic ones, and the nature of human behavior, individual and collective. Overall, the social science core is expected to give students a solid basis in the following: (1) the knowledge of key terms, concepts, and schools of thought relevant to the selected disciplines; (2) the ability to recognize the historical context of the issues and works studied, as well as the underlying social, psychological, economic, and political influences; (3) the ability to recognize, analyze, and critically evaluate divergent points of view relevant to the above; (4) the ability to discuss the subjects intelligently and write about them clearly; and (5) the ability to apply the knowledge and skills gained to upper-division courses and to life beyond the classroom.

AmSt 101, American Identities (3 cr) (pilot offering)
Anth 100, Introduction to Anthropology (3 cr)

CORE 101-102, Core Discovery (7 cr)
Econ 201 and/or 202, Principles of Economics (3 cr each)
Econ 272, Foundations of Economic Analysis (4 cr)
Geog 200, World Regional Geography (3 cr)
Hist 101 and/or 102, History of Civilization (3 cr each)
PolS 101, Introduction to Political Science and American Government (3 cr)
Psyc 101, Introduction to Psychology (3 cr)
Soc 101, Introduction to Sociology (3 cr)

**J-4. Grade Requirements.** To qualify for the baccalaureate degree, a candidate must have a UI grade-point average of 2.00 or better. See exceptions under E-4 and E-5.

**J-5. Credit Limitations.** A candidate may count toward a baccalaureate degree no more than:

J-5-a. Seventy credits earned at junior or community colleges, or one-half of the total credits required for a student's intended baccalaureate degree, whichever is the higher number.

J-5-b. Forty-eight credits in any combination of credits granted for the following types of courses: credit based on test scores (for CLEP, College Board advanced-placement tests, ACT, SAT, COMPASS), credit by examination (challenge), experiential learning, independent study, technical competence, vertically-related course credit, and vocational-technical or military school courses. This 48-credit limitation may be exceeded for good cause with the approval of the Academic Petitions Committee (file petition through dean's office). Note: credits earned through any combination of external study and technical competence cannot exceed a maximum of 32 of the allowable 48 credits.

J-5-c. Twelve credits earned under the pass-fail option (see B-11).

J-5-d. Six credits in English composition.

J-5-e. Six credits in remedial-level courses; to be counted, these credits must have been earned before the fall semester 1983; no such credits earned after summer session 1983 may be counted.

**J-6. Assignment of Curricular Requirements (Catalog Issue).** In addition to fulfilling the general university requirements for degrees, candidates for baccalaureate degrees must satisfy the particular requirements specified for their curricula. The pertinent requirements are those contained in the most recent UI catalog issue that was in effect at the time of, or subsequent to, the candidate's admission as a degree-seeking student at UI. The earliest catalog issue available to students re-admitted as a degree-seeking student at the UI, is the most recent catalog at the time of re-admittance. A catalog issue is valid for a maximum of seven years from its effective date. The effective date of a catalog issue is the first Monday following spring graduation.

**J-7. Second Baccalaureate Degree.**

**J-7-a.** Students may concurrently pursue two different majors leading to two different baccalaureate degrees (e.g., B.A. and B.S.Ed.) from UI by working to fulfill the general university requirements for one degree and the departmental and college subject-matter requirements for each. For exceptions to this regulation, see notes with the curricula in general studies and agricultural science and technology in parts 4 and 5, respectively. Students who plan to pursue two degrees concurrently should develop a schedule of studies that combines the degree requirements and present it to the dean(s) of the college(s) concerned as early as possible, preferably before the end of the junior year.

**J-7-b.** Students who have earned a baccalaureate degree at UI and who wish to complete the requirements for a different major and receive a second baccalaureate degree must earn at least 16 credits as an undergraduate student in UI courses other than those offered by independent study after the receipt of the first degree and fulfill the departmental and college subject-matter requirements for the second degree. (See B-9.) Students may return to UI and earn a second degree carrying the same name as one previously granted by UI so long as the requirements for a different major are satisfied and the students earn at least 16 credits as an undergraduate student in UI courses other than those offered by

independent study after the receipt of the first degree. For exceptions to this regulation, see notes with the curricula in general studies and agricultural science and technology in parts 4 and 5, respectively. This regulation does not apply to students who were concurrently pursuing two different degrees under regulation J-7-a or to students who were concurrently pursuing two different majors under regulation J-8.

**J-7-c.** Students who have a baccalaureate degree from another recognized institution and who wish to earn another baccalaureate degree at UI, must earn a minimum of 32 credits as an undergraduate student in upper-division UI courses other than those offered by independent study after the receipt of the first degree and fulfill the departmental and college subject-matter requirements for the degree. (See B-9.)

**J-8. Degree with Double Major.** Students may complete two different majors (curricula) offered under a particular baccalaureate degree and have both majors shown on their academic records and diplomas, e.g., Bachelor of Arts with majors in history and political science. Each of the majors must lead to the same degree. When majors leading to different degrees are involved, see the requirements applicable to the awarding of a second baccalaureate degree (J-7).

**J-9. Academic Minors.**

**J-9-a.** An academic minor is a prescribed course of study consisting of 18 or more credits. For descriptions of minor curricula, see the programs of the degree-granting units in part 5. In the following paragraphs of J-9, "minor" denotes "academic minor," which is to be distinguished from "teaching minor"; for information on the latter, see the College of Education section of part 4.

**J-9-b.** A student may pursue one or more minors in addition to a major by filing with the registrar a declaration of intention to do so. Completion of a minor is required only if specified by the degree-granting unit, but any minor completed is recorded on the student's academic record.

**J-9-c.** Transfer credits may be applied to a minor with the approval of the department offering the minor; however, the last nine credits applied to completion of the minor must be earned in UI courses, through study abroad, or through student exchange programs, and may not include credits earned through correspondence study.

**J-9-d.** A student may complete an undergraduate minor even though he or she has already earned a baccalaureate degree. If the sole objective is to complete an undergraduate minor, the student should declare a “Minor-Only” curriculum in the department offering the minor. Students who declare a minor-only curriculum are not eligible for financial aid funds (see the Student Financial Aid Services section in Part 2).

## K – Academic Honors

**K-1. Graduation with Honors.** Candidates for baccalaureate degrees are graduated with honors if they satisfy ONE of the following conditions:

**(1)** Their cumulative UI grade-point averages are as specified in K-1-a, K-1-b, or K-1-c and they have earned at least 56 credits in UI courses OR

**(2)** Both their cumulative UI grade-point averages AND their grade-point average from all sources (the overall GPA on Banner) are as specified in K-1-a, K-1-b, or K-1-c, and they have earned at least 32 credits in UI courses.

No credits earned through correspondence study, bypassed courses, credit by examination, College Level Examination Program, experiential learning, or technical competence may be counted among these 56 or 32 credits. Candidates for the degree of Juris Doctor are graduated with honors under the same conditions, except the grade-point average considered is based exclusively on the student's record in the College of Law. Honors are not awarded with degrees earned through the College of Graduate Studies.

**K-1-a.** Candidates whose grade-point averages would place them within the top 3 percent of graduates from their respective colleges over the preceding five years are graduated *summa cum laude* (with highest distinction).

**K-1-b.** Candidates whose grade-point averages would place them within the top 6 percent (but below the top 3 percent) of graduates from their respective colleges over the preceding five years are graduated *magna cum laude* (with great distinction).

**K-1-c.** Candidates whose grade-point averages would place them within the top 10 percent (but below the top 6 percent) of graduates from their respective colleges over the preceding five years are graduated *cum laude* (with distinction).

**K-2. Dean's List.** Undergraduate students who are registered for at least 14 credits (10 in the College of Law) and attain a grade-point average of 3.30 (3.00 in the College of Law) for a given semester are placed on lists prepared for the college deans. (Except for grades of P earned in Engl 101, credits for which a student was graded P are not computed in the specified minimums.) These lists are publicized within UI and are distributed to news agencies.

## L – Academic Standing, Probation, Disqualification, and Reinstatement

**L-1. Academic Standing for Undergraduate Students.** Students are considered to be in good academic standing when they have a semester and a cumulative grade-point average of 2.00 or higher.

**L-2. Academic Probation for Undergraduates.**

**L-2-a.** At the end of a semester, undergraduate students who do not attain the cumulative grade-point average required for their rank (see L-6) are placed on academic probation for the next semester of enrollment and are referred to the appropriate academic dean for advising. The effect of this probationary status is to serve notice that if a student's cumulative record at the end of the next semester in residence is unsatisfactory he or she will be disqualified and ineligible to continue at UI.

**L-2-b.** Students on academic probation who attain a cumulative grade-point average higher than the minimum required for their rank are automatically removed from probation.

**L-2-c.** Students on academic probation who attain a grade-point average of 2.00 or higher during the next or subsequent semester after being placed on probation, but whose cumulative grade-point average is still below the minimum required for their rank, remain on academic probation.

**L-2-d.** Because final grades for a probationary term may not be available until after a student has registered for an ensuing term, such registration must be considered tentative until the student's academic standing may be determined. If the student is disqualified at the end of the probationary term, the registration for the ensuing term is invalid and will be cancelled unless the student is reinstated (see L-4).

**L-3. Disqualification for Undergraduates.** Students on academic probation will be disqualified at the end of a probationary semester unless the minimum cumulative grade-point average required for their rank (see L-6), or a semester grade-point average of at least 2.00, is attained. To reregister after being academically disqualified, students must be reinstated.

**L-4. Reinstatement for Undergraduates.**

**L-4-a.** After a first disqualification, students may be reinstated (i.e., have their eligibility to continue restored) by petition to and favorable action by the college in which they are enrolled OR by remaining out of UI for at least one semester. Summer does not qualify for a semester lay-out period.

**L-4-b.** After a second disqualification, students may be reinstated at any time only by petition to and favorable action by the college in which they are enrolled.

**L-4-c.** Students disqualified for a third time may be reinstated only after successful petition to the college in which they are enrolled and the Academic Petitions Committee.

**L-4-d.** Students who have been reinstated may continue to register on probation so long as they attain a 2.00 or better grade-point average for each semester following a disqualification, even if their cumulative UI grade-point average is below the minimum required in regulation L-6.

**L-4-e.** Students who are disqualified and reinstated are reinstated on academic probation.

**L-5. Dean's Referral for Undergraduates.** Students who attain a grade-point average below 1.50 during a given semester without dropping below the cumulative grade-point average required for their rank receive a dean's referral. Although this does not affect their eligibility to register, the students are referred to the appropriate academic dean for advising.

**L-6. Academic Probation and Disqualification Cutoff by Rank for Undergraduates.**

| Rank (by Credits Earned) | Minimum UI Grade-Point Average |
|---|---|
| 0 through 32 | 1.60 |
| 33 through 64 | 1.80 |
| 65 and up | 2.00 |

**L-7. Summer Session.** Disqualification at the end of a spring semester does not affect a student's eligibility to continue in the immediately ensuing summer, but to register in any subsequent term the student must be reinstated.

**L-8. Fresh Start.** Qualified undergraduate students who wish to reenter the university in a specific degree program after a period of absence will be allowed a "Fresh Start" as described below.

**L-8-a.** To qualify for a Fresh Start, students (1) must not have been enrolled in any college or university as a full-time matriculated student for at least the five years immediately before applying for the program, (2) must have a UI cumulative GPA of less than 2.00, and (3) must be approved for the program by the college dean that administers the academic program they wish to pursue.

**L-8-b.** Once the student has completed an additional 24 credits of course work with a Fresh Start cumulative GPA of at least 2.00 and has been in the program at least two semesters, the cumulative GPA will be reset to 0.00 as of the time of admission to the Fresh Start Program.

**L-8-c.** Students in the Fresh Start Program will be allowed a maximum of six credits of "W" during the first two semesters after admission to the program. If the Fresh Start is successfully completed, the count for the 20-credit limit on withdrawals (see C-2) will be reset to 0 as of the time of admission to the Fresh Start Program.

**L-8-d.** University probation and disqualification regulations apply throughout the Fresh Start process.

**L-8-e.** To graduate with honors, a student in the Fresh Start Program must have at least 56 credits in UI courses after the Fresh Start (see K-1). Fresh Start Program participants are eligible for the dean's list (see K-2) on a semester-by-semester basis.

**L-8-f.** Application forms and explanatory materials are available at the Registrar's Office.

**L-9.** This regulation L does not apply to law, graduate, or full-time nondegree students. See the College of Graduate Studies section of Part 4 for information on probation, disqualification, and reinstatement of graduate students. See the College of Law Announcement for information for law students.

## M – Attendance, Repeated Absences, Field Trips, and Official Student Travel

**M-1. Attendance.** Students are responsible for class attendance; in all cases of absence, students are accountable for the work missed. In the case of officially approved absence and on the request of the student, the instructor is obligated to provide an opportunity for the student to make up for missed work. In general, an absence is considered "official" when the student is: (a) participating in an approved field trip or other official UI activity (e.g., athletics, debate, music, or theatre arts); (b) confined under doctor's orders; (c) called to active military duty during emergency situations; or (d) granted a leave of absence from UI for reasonable cause by his or her academic dean.

**M-2. Repeated Absences.** In courses where a substantial amount of the content can be mastered only or primarily through class participation, regular and punctual attendance is essential and may, therefore, be reflected in grading. Instructors will make clear at the beginning of each course the extent to which grades are dependent on attendance. Instructors may report to the registrar students who are repeatedly absent from classes (a form is available from departmental and college officials). Absences may be considered excessive when their number equals or exceeds the number of credits in a particular course.

**M-3. Field Trips and Official Student Travel.** "Field trip" is defined as any required, course-related student travel that exceeds 25 air miles from the campus or conflicts with other classes that the students involved are taking. (A trip taken within 25 air miles during the time scheduled for the particular class or at a time that does not conflict with other classes the students involved are taking is a "local trip," not a "field trip.")

**M-3-a. Missed Class Work.** Students participating in field trips, as defined above, or other official UI activities are responsible for conferring in advance with the instructors of any classes that will be missed in order to be eligible for making up missed class work. (See M-1.)

**M-3-b. Approval of Course-Related Field Trips.** Administrative approval for course-related field trips will be obtained by the person in charge of the trip as follows:

**(1)** Each field trip as identified in the catalog course description requires prior approval by the department in accordance with divisional procedures (application for approval should be made at least one week before the expected departure).

**(2)** Each field trip NOT identified in the catalog course description requires prior approval by the departmental administrator, the dean of the college, and the provost (application for approval should be made at least two weeks before the expected departure).

**M-3-c. Approval of Other Official Student Travel.** Administrative approval for official student travel that is NOT course related is obtained from the vice president for student affairs (application for approval should be made at least two weeks before the expected departure).

**M-3-d. Costs.** When a college can cover all or part of the cost of a course-related field trip from allocated funds, the college should do so. If the college cannot cover the cost, or a portion thereof, the cost (or remaining portion) must be borne in proportionate share by the students in the course. Students missing required field trips identified in the catalog course description must pay their proportionate shares.

**M-3-e. Field-Trip Completion Deadline.** All field trips and other UI-approved student travel must be completed before 7:30 a.m. on the fifth day of classes before the start of final examinations.

**M-3-f. Unofficial Student Travel.** UI student accident insurance does not cover injuries sustained in the course of travel unless the travel has been officially authorized by the appropriate UI agent.

**M-3-g. Vehicle Information.** Information concerning privately owned vehicles (registration, insurance, driver's license, etc.) to be used for field trips or other official student travel must be filed in the Business and Accounting Services Office (Rm. 101, Ad. Office Bldg.). Administrators of departments and divisions are responsible for ensuring that the required information is filed before the initial use of each privately owned vehicle in a given academic year.

**M-4. Accommodation of Religious Observances in the Administration of Examinations.** When tests or examinations fall on days objectionable to a student because of religious beliefs, the student should contact the instructor as soon as possible. The instructor may require the student to submit a concise, written statement of the reasons for the request. If the request appears to be made in good faith, the instructor should make alternative arrangements for the administration of the examination or test. If the instructor believes the request not to be in good faith, or if the instructor and the student are unable to agree on arrangements, the student or the instructor should seek the assistance of the departmental administrator, dean, or provost, in that order.

**M-5. Drop for Non-attendance.** Students are responsible for notifying their instructors through the registrar when extenuating circumstances not covered as an officially approved absence as defined in M-1 prevent their attendance during the first week of the semester. Instructors may drop from classes students who have not attended class or laboratory meetings nor notified the instructor through the registrar by the end of the first week of classes. Valid reasons for missing classes do not relieve the student of making up the work missed.

## N – Class Rating

Class ratings of undergraduates are determined as follows: sophomore-26 credits, junior-58 credits, and senior-90 credits.

## O – Miscellaneous

### O-1. Credit Requirements for Full-Time Students.

**O-1-a.** For purposes other than fees, UI students in all divisions except the College of Graduate Studies and the College of Law must carry 12 credits each semester or summer session to be classified as full time.

**O-1-b.** For fee and tuition purposes only, students carrying eight or more credits (or equivalent in audits and zero-credit registrations) and all teaching/research assistants on full appointment, regardless of the number of credits they register for, are classified as full-time students.

**O-1-c.** Students in the College of Graduate Studies are considered full time: (1) when registered for nine credits (or equivalent) of course and/or thesis work; or (2) when on regular appointments as teaching assistants or research assistants.

**O-1-d.** Veterans and war orphans attending UI on the G.I. Bill must carry certain minimum credit loads to be considered by the Veterans' Administration for benefits as indicated in the table accompanying this regulation. (Audits do not count; repeats and reviews may be included when the student's advisor certifies that the course is required in the student's curriculum or is needed to remove a deficiency or to provide essential background for the student's program; file a copy of the program with the veterans' clerk at the Office of Dean of Students.)

| MINIMUM CREDIT LOADS FOR VETERANS' BENEFITS | | | |
|---|---|---|---|
| **Benefits** | **Academic Year Undergraduate** | **Academic Year Graduate** | **Summer Session Undergrad & Grad** |
| Full | 12 or more | 9 or more | Must be Arranged |
| Three-fourths | 9-11 | 6-8 | |
| Half | 6-8 | 4-5 | |
| Fees and tuition only | Fewer than 6 | Fewer than 4 | |

**O-1-e.** Students in the College of Law are considered full time when registered for 10 credits (or equivalent) of course work.

**O-1-f.** The president, vice president, and senators of the Associated Students University of Idaho are considered full time when carrying at least the following credit loads: president, three credits; vice president and senators, six credits. The editor and associate editor of the *Argonaut* are considered full time when paying full-time student fees and carrying at least the following credit loads: editor, three credits; associate editor, six credits.

**O-2. Academic Performance.** Instructors and students are responsible for maintaining academic standards and integrity in their classes. Consequences for academic dishonesty may be imposed by the course instructor. Such academic consequences may include but cannot exceed a grade of "F" in the course. If the student deems the grade unfair, he or she may appeal through the appropriate departmental administrator and college dean, and finally to the Academic Hearing Board.

In addition to the academic consequences, disciplinary penalties for academic dishonesty may include suspension or expulsion and must be handled by the Student Judicial System, which is described in the Student Code of Conduct section of the *"Policies & Information of Interest to Students"* booklet and the *Faculty-Staff Handbook.*

**O-3. Application for Degrees.** In the semester prior to the completion of degree requirements, candidates for degrees must pay the diploma fee (graduate students may also need to pay a binding and microfilming fee) and file an application with the dean of the college through which the degree is offered. If two degrees are to be received concurrently, separate applications must be filed with the dean(s) of the college(s) concerned. The application must be filed with the dean after the diploma, binding, and microfilming fees have been paid at the Student Accounts/Cashiers Office. (See "Fees and Expenses" in Part 2.) The deadline for filing applications for degree without a late service charge, is the final day of the Fall semester for degrees to be awarded in May, and the final day of the Spring semester for degrees to be awarded in August or December.

**O-4. Commencement.** Formal commencement exercises are held at the close of the fall and spring semesters; however, diplomas are also issued at the close of the summer session to such candidates as have completed their graduation requirements at that time. All students who graduate in the summer, fall, or spring are entitled to participate in the commencement exercises. Students must indicate on their application for degree whether they intend to participate in the formal commencement exercises so that appropriate arrangements can be made. Reservations for caps, gowns, and hoods must be made by the date specified by the registrar. Diplomas are ready about twelve weeks after the end of the academic session in which graduation requirements are completed.

**O-5. Limitations on Class Size.**

**O-5-a.** Limitations on class size must have prior approval by the dean of the college in which the course is offered. If it becomes necessary to limit the size of a class on a continuing basis (more than two semesters), the limitations must be approved through faculty channels--University Curriculum Committee and university faculty--and be made part of the catalog description of the course.

**O-5-b.** Preference for enrollment in courses with limitations on class size is given to students enrolling in them for the first time. At the option of the department, students repeating courses for any reason may be placed on standby status. Students in that status are allowed to register for the course, if there is available space, by permission of the department offering the course. In no case may a student be held in standby status for any one course for more than two consecutive semesters.

**O-5-c.** Any student denied admission to a class may appeal in writing to the provost for a review of the circumstances involved.

**O-6. Students' Right to Change Course Sections.** Students have the right to change from one section of a course for which they are qualified to another section of the same course during the first two weeks of classes so long as the section into which they wish to transfer has not reached the maximum number of students that may be accommodated. (See appeal procedure in O-5.)

**O-7. Availability of Instructors' Names.** As a matter of principle, students and their academic advisors and deans have the right to know the names of the instructors who will teach course sections to be offered during the immediately ensuing semester or summer session. Departments are required to submit the names of instructors for all course sections for publication in the Time Schedule. Where it is impossible to determine the teaching assignments of individual members of the instructional staff before the deadline for the Time Schedule, departments are responsible for making information concerning adjustments in teaching assignments generally available to students, advisors, and deans at such time as they occur.

**O-8. Confidentiality of Academic and Counseling Records.** See the student records policy in the booklet entitled "Policies and Information of Interest to Students," available from the Office of the Dean of Students (UCC 241), the Office of the Vice President for Student Affairs (Student Union Building), and other locations around the campus.

**O-9. Deviations from Established Class Schedules.**

**O-9-a.** The provost periodically reminds deans and departmental administrators of their responsibility to ensure that classes meet in conformity with the course descriptions and *Time Schedule*. (It is the responsibility of the University Curriculum Committee to see that the time requirements stated in new or revised course descriptions satisfy general regulation D-1, "Credit Defined"; it is the responsibility of the registrar to see that listings in the Time Schedule conform to the respective course descriptions.)

**O-9-b.** The cancellation of a particular class session or sessions on an occasional basis, normally due to unusual circumstances affecting the instructor of or the students in the class, is a matter for the instructor's discretion. Nonetheless, instructors should keep such cancellations to a minimum, be satisfied that the grounds for cancellation are defensible, give as much advance notice of the cancellation as is possible, and, if time permits, obtain the concurrence of the departmental administrator in advance. Frequent failure of an instructor to meet classes, except for reasons clearly recognizable as adequate, may be grounds for disciplinary action.

**O-9-c.** The scheduling of required class meetings at times other than those specified in the Time Schedule or authorized in the course descriptions (e.g., field trips) requires approval by the provost. In addition to securing the provost's approval, the instructor must give the students at least two weeks' notice, provide alternative means of completing class requirements for students who have irreconcilable conflicts with the irregular meetings, and, normally, cancel regularly scheduled class meetings equivalent to the irregular meetings. (If it is proposed that such irregular meetings be made a continuing practice, they are to be incorporated in the course description and the revised description submitted to the University Curriculum Committee for routine faculty approval.)

**O-9-d.** Authorized class meetings at times other than those shown in the Time Schedule is one of the topics that instructors are to discuss at the first or second class session.

# College of Art and Architecture

**Joseph R. Zeller, Dean (AA 202 83844-2461; 208/885-6272; http://www.aa.uidaho.edu).**

The College of Art and Architecture was established in 1981 to bring together the disciplines of art, architecture, landscape architecture and interior design to orchestrate the creation of the visual and physical human environment. This combination not only increases the resources available to students, but also brings together a community of scholars with a common dedication to a sustainable, high quality physical environment. Additionally, such a relationship reinforces the integration of the disciplines, preparing students for the interdisciplinary nature of contemporary practice. The quality of these programs has earned the college an excellent and widespread reputation.

The objective of the College of Art and Architecture is to provide an educational experience for qualified students from diverse backgrounds who are interested in the visual and environmental design disciplines and the fine arts. Upon completion of a program in one of these disciplines, graduates are equipped to become professionally competent individuals, capable of making valuable and distinguished contributions to their profession and society.

## Aptitudes

Students likely to succeed in the design and visual arts are those with a serious purpose and willingness to work hard. Equally important is the ability to visualize in three dimensions. Students need to be creative, inquisitive, and be able to effectively communicate both visually and verbally. Students should also value cultural and social diversity and be willing to learn in an interdisciplinary and cooperative manner.

## Faculty

Faculty are the key to quality of the educational experience obtained through the college programs. Combining the energies of a well recognized, scholarly and creative faculty with the innovative talents of experienced architects, artists, designers, and landscape architects, the college develops the skills of future professionals by preserving the balance between the theoretical and practical aspects in each of the programs represented. Within the design professions focus is placed on the application of contemporary design issues with an emphasis on environmental responsibility and the role of history and culture in meeting the diverse needs of a global society.

## Facilities

The College of Art and Architecture is housed in several buildings that are located in the very center of the university campus. These buildings are in close proximity to university classroom buildings, library, administrative offices, and recreational facilities. The Ridenbaugh Hall Gallery on campus and the Prichard Gallery in downtown Moscow are administered by the college and provide support to all college disciplines.

## Departments

There are three departments in the college: Architecture, which also offers an interior design program; Art, with several areas of emphasis, and Landscape Architecture. Although these departments are separate entities, the teaching, research, and service missions of all the departments are integrated and coordinated at the college level. Information is available on the Internet at http://www.aa.uidaho.edu.

## Fees

Students in the College of Art and Architecture pay a general fee and special course fees. Students admitted to the professional programs in architecture, interior design, and landscape architecture pay a professional fee to support the special needs of these curricula. See "Fees and Expenses" in Part 2 of this catalog.

## Preparation and Admission

A statement of undergraduate and graduate admission requirements is included in Part 2 of this catalog. Students who contemplate entering the College of Art and Architecture with advanced standing from a junior college or other institution should complete as many of the freshman and sophomore requirements listed in the curricula as possible. Certain courses are prerequisites to many advanced courses, and their omission will delay graduation. Certain grade-point averages and other conditions are required for entering into particular programs in the college. See the preface to each curriculum.

## Programs and Degrees

**ARCHITECTURE**
The Department of Architecture offers two professional degree programs: the seamless B.S.Arch. + M.Arch, a 5-year program fully accredited by National Architectural Accreditation Board and the B.F.A. in Interior Design. The M.A. Architecture is also offered as a post-professional graduate degree.

**ART**
The Department of Art offers the following undergraduate degrees: B.S. in Art Education, B.A. in Art, and B.F.A. in Studio Art with areas of emphasis in drawing, painting, ceramics, sculpture, textile design, printmaking, graphic design, and interface design. Graduate degree includes the M.F.A. and M.A. in Teaching. All programs are accredited by the National Association of Schools of Art and Design.

**LANDSCAPE ARCHITECTURE**
The Department of Landscape Architecture offers the 4-year professional B.L.Arch., a program fully accredited by the Landscape Architecture Accreditation Board. Also, the M.S. Landscape Architecture is offered as a post-professional degree.

All program curricula require some courses in the visual literacy core sequence of Art 100, 110, 111, 112, 121, and 122. Other foundation courses unique to each discipline are also required. The curricular options in each program provide an opportunity for interdisciplinary learning and outreach.

## Graduate Programs

Please refer to the specific departments in Part 5.

## Scholarships and Awards

Scholarships and awards are available to students and prospective students. See "Financial Aid" in part 2. Also, contact specific program administrators.

## General Requirements for Graduation

**University Requirements.** See regulation J in Part 3 for the all-university requirements for graduation.

**College Requirements.** See Part 5 for specific degree requirements within each department.

Upon registering for any course offered in this college, the student agrees that the department offering the course may retain work completed by the student. The department will make retained work available to the student for photographing.

# College of Agricultural and Life Sciences

**A. Larry Branen, Dean and Vice President for Extension (53 Iddings Wing, Ag. Sc. Bldg.; 208/885-6681); John E. Hammel, Associate Dean and Director of Academic Programs; Paul F. McCawley, Associate Dean and Associate Director of the Cooperative Extension System; Richard C. Heimsch, Associate Dean and Director of the Idaho Agricultural Experiment Station.**

The College of Agricultural and Life Sciences provides quality programs in agricultural, food, family and consumer sciences, and related areas to all of Idaho. In addition to academic programs, the college also advances knowledge in these areas by research conducted through the Idaho Agricultural Experiment Station and provides information transfer and application of new knowledge to the state and the nation through the Cooperative Extension System. The college also actively participates in international development and student and faculty exchange programs around the world. The College of Agriculture was established in 1901 and was renamed to the College of Agricultural and Life Sciences in 2001. The Margaret Ritchie School of Family and Consumer Sciences became part of the college in 1983.

## Advantages

The College of Agricultural and Life Sciences offers a quality education in a professional and friendly atmosphere. Each student has a faculty advisor who is readily available to assist in academic and career planning. There is also a peer advising program to help first-time students become acquainted with the college and the university. Undergraduate students often have the opportunity to experience their major by working on research projects and internships directed by faculty members. The college also offers leadership opportunities through 20 departmental and college student organizations.

## Faculty

The faculty are the key to quality education. In the College of Agricultural and Life Sciences, there is a low student/teacher ratio and most classes are taught by faculty members. They bring to their students a strong commitment to teaching and a richness of depth, experience, and research.

## Units

The College of Agricultural and Life Sciences offers 23 majors through 8 academic units. The units are Agricultural Economics and Rural Sociology; Agricultural and Extension Education; Animal and Veterinary Science; Biological and Agricultural Engineering; Family and Consumer Sciences; Food Science and Toxicology; Microbiology, Molecular Biology and Biochemistry; and Plant, Soil and Entomological Sciences.

## Facilities of the College

The College of Agricultural and Life Sciences is housed in five buildings on campus and in many other facilities around the state. Some of the unique facilities include a child development laboratory, student computer laboratories, a state-of-the-art biotechnology research laboratory, an agricultural engineering laboratory, a food science and toxicology research center, and research farms of more than 2,500 acres for beef, dairy, sheep, plant science, and other programs. In addition to facilities at Moscow, there are offices in 42 counties and research and extension centers at 10 locations throughout Idaho.

## Agricultural Experiment Station

The Idaho Agricultural Experiment Station was established in 1892 as the research function of the College of Agricultural and Life Sciences and has the responsibility to conduct applied and basic investigations

leading to problem solving and new knowledge for agricultural industries, rural communities, and family living. The Idaho Agricultural Experiment Station is coordinated with and provides research for teaching and extension to more effectively meet the needs of Idaho citizens.

The Idaho Agricultural Experiment Station is integrated into all departments of the college. Thus, most of the college's teaching faculty also have partial research appointments in the experiment station. Other faculty members have combined extension and research appointments and some are assigned to full-time research.

The Idaho agricultural research program is statewide. Research is conducted in a number of areas related to agriculture and on all major agricultural commodities. The center for the research program is located on the Moscow campus. In addition, there are 10 research and extension centers in strategic agricultural areas around the state where resident research and extension personnel are located.

The Idaho Agricultural Experiment Station shares the responsibility of developing and educating future scientists through undergraduate research and graduate assistantship programs. Currently, there are approximately 174 graduate students enrolled in the College of Agricultural and Life Sciences, most of whom are on assistantships or stipends. These appointments are generally for two years at the Master of Science level and for three years in Ph.D. programs, during which time the students conduct research as a part of their graduate education.

## Cooperative Extension System

The Cooperative Extension System was established by the Smith-Lever Act, signed May 8, 1914, to help extend research to the people of the United States in order to improve their farms, families, and communities. The Idaho legislature approved the Cooperative Extension concept in 1915. In 1917, additional state legislation brought the county boards of commissioners into the cooperative three-way federal, state, and county partnership.

The Cooperative Extension System is an integral part of the University of Idaho and the College of Agricultural and Life Sciences and is administratively coordinated with the teaching and research functions of the college. The extension function is organized to extend the knowledge created through research to the people of the state of Idaho so that they can apply the findings to their particular situations, thereby solving their problems and improving their quality of life.

The headquarters of the Cooperative Extension System is at Moscow. District offices are located at Moscow, Boise, Twin Falls, and Idaho Falls. The state is the campus for the Cooperative Extension System.

Educators live and work in the areas to which they are assigned by mutual agreement of the university and the counties involved. Agricultural, family and consumer sciences, and youth educators are located in 42 of Idaho's 44 counties and are also involved in multi-county programming.

Backstopping the county faculty are state Extension specialists located at Idaho Falls, Parma, Caldwell, Aberdeen, Boise, Sandpoint, Soda Springs, Twin Falls, Moscow, and Kimberly. These specialists, in turn, keep up to date by cooperating with research scientists of the College of Agricultural and Life Sciences and the U.S. Department of Agriculture.

Extension educational programs are conducted in four broad areas. These are: (1) agriculture and natural resources, (2) family and consumer sciences, (3) 4-H and youth development, and (4) rural development. Programs are both disciplinary and interdisciplinary and are designed to address the issues facing Idahoans. Major programming issues include water quality, youth at risk, waste management, food quality, nutrition, and agricultural sustainability.

The University of Idaho Cooperative Extension System helps people improve the social, economic, and environmental qualities of their lives through research-based education and leadership development focused on issues and needs. To accomplish this mission, the Cooperative Extension System works under the basic

philosophy that programs planned with people will achieve greater success than programs planned for them. Extension takes the resources and research of the land-grant university out into the state so that Idaho's citizens can benefit from their university.

## Degrees and Curricula Offered

Students in the College of Agricultural and Life Sciences are encouraged to pursue a broad education. In each curriculum, minimum requirements are specified in agriculture or family and consumer sciences disciplines; in the life, physical, and social sciences; and in humanities to qualify the graduate to enter professional fields in agriculture and family and consumer sciences. Each curriculum also permits students to choose elective courses that will assist in personal and professional growth, development of communication skills, and a better understanding of the world in which we live.

**Undergraduate.** Baccalaureate degrees and major curricula offered by the College of Agricultural and Life Sciences include Bachelor of Science degrees in Agricultural Education; Agricultural Economics (with majors in agricultural economics, agribusiness, and natural resources and rural development); Agricultural Science and Technology; Agricultural Systems Management; Animal Science (with majors in animal science, agribusiness, and dairy science); Entomology; Family and Consumer Sciences (with majors in child, family, and consumer studies; clothing, textiles, and design; and food and nutrition); Food Science; Horticulture; Microbiology; Molecular Biology and Biochemistry; Plant Science (with majors in crop science, plant protection, and plant science); Range Livestock Management; Science/Preveterinary; and Soil Science. Baccalaureate degrees in Agricultural Engineering and Biological Systems Engineering are offered through the College of Engineering. See the departmental sections below for the programs of study leading to these degrees.

**Graduate.** Graduate study leading to the degree of Master of Science is offered in Agricultural Economics; Agricultural Education; Animal Science; Entomology; Family and Consumer Sciences; Food Science; Microbiology, Molecular Biology and Biochemistry; Plant Science; Soil Science; and Veterinary Science. Graduate study leading to the degree of Doctor of Philosophy is offered in Animal Physiology; Entomology; Microbiology, Molecular Biology and Biochemistry; Plant Science; and Soil Science. Both M.S. and Ph.D. programs in Agricultural Engineering are offered through the College of Engineering. Students must fulfill the requirements of the College of Graduate Studies and the units in which they study.

## General Requirements for Graduation

**University Requirements.** See regulation J in Part 3 for requirements that all students in the university must meet.

**College Requirements.** See Part 5 for specific degree requirements within each department.

## Major Curricula

The specific requirements for the undergraduate majors are listed in Part 5. Each student is assigned an advisor who assists in the planning of his or her program; however, the student has the final responsibility for the completion of all university, college, and departmental requirements.

# College of Business and Economics

**Byron J. Dangerfield, Dean (301A J. A. Albertson Bldg.; 208/885-6478); John S. Morris, Associate Dean; Dana Wekerle, Administrative Coordinator; Cheryl A. Wallace, Secretary of the College Faculty.**

The college was established as a professional division of the university in 1925. Long known as the College of Business Administration, it became the College of Business and Economics (CBE) in 1969. Its principal objective is to provide a sound background in the basic business principles that will help graduates as they advance into positions of responsibility. As part of a state-supported land grant university, the CBE also aims to give its students an appreciation of the social importance and responsibilities of businessmen and businesswomen, and both the values and the knowledge to discharge those responsibilities.

The college's mission is to deliver undergraduate and selected graduate and professional programs that prepare individuals to excel in a competitive marketplace.

Its goals and objectives are to: (1) be the residential institution of choice for undergraduate management education in the Northwest, (2) seek continuous improvement in the quality of programs and teaching, (3) nurture a faculty engaged in scholarship and publication, having a primary focus on relevant applied research, (4) attract, maintain, and nurture outstanding faculty, staff, and students, (5) improve our university, the state of Idaho, the Northwest region, and our professions through service, and (6) enhance program quality by involving interested constituencies including students, alumni, and businesses.

Through the Center for Business Development and Entrepreneurship, the college contributes to business development and the advancement of knowledge about our state's economy and its business activities. The center conducts management development programs for business and governmental organizations including the Positioning Executives for Change course and funded research projects that involve CBE and other UI faculty members and students in solving practical problems in Idaho and the Northwest.

**International Business Programs.** There are various programs by which a UI student can pursue international business. The following programs are available in connection with a B.S.Bus. degree: a major or minor in a foreign language; a major or minor in international studies; a major or minor in political science. For students seeking a B.S.Bus. degree, a minor is offered in international business (see Department of Business below). In addition, a student may have a dual major in business and foreign languages or major in foreign languages (B.A.) with a business option. A third option is the international studies program (B.A.), which may be selected by itself or as a dual major with business. Contact the Dean's Office in the College of Business and Economics for further information on international business programs.

## Curricula and Degrees Offered

**Undergraduate.** The degree of Bachelor of Science in Business is offered with seven majors through two departments, as follows: Department of Accounting – accounting; Department of Business – business economics, finance, management and human resources, information systems, marketing, and production/operations management.

Specific requirements for each major are described in part five, "Departments of Instruction," under the appropriate department. The program of study includes three principal components: the general university requirements, the business and economics core, and the requirements for the selected CBE major field. Detailed statements of college requirements are under "General Requirements for Graduation."

**Graduate.** The CBE, through the College of Graduate Studies, offers the degrees of Master of Accountancy (M.Acct.) in accounting and the Master of Science (M.S.) in economics. The M.Acct. degree qualifies students to enter the public accounting profession in auditing, tax, or other positions ultimately requiring a Certified Public Accountant (CPA) license. The M.S. in economics provides students with a firm background in theory, and then emphasizes training in policy analysis and applied studies.

Graduate students must fulfill the requirements of the College of Graduate Studies and the department in which they study.

## Standing of the College

Fully accredited by AACSB, International Association to Advance Collegiate Schools of Business, and the Northwest Association of Schools and Colleges, the College of Business and Economics keeps apace of developments in business through membership in various professional organizations and by consultation with Idaho business leaders, particularly through the CBE Advisory Board. The quality of the program has been recognized by Idaho leaders through the awarding of the Idaho Quality Award. In addition, the outstanding achievements of CBE graduates in business and government, and in professional certification examinations, such as the CPA exam, also attest to the quality of the programs.

## General Requirements for Graduation

**University Requirements.** See regulation J-3 in Part 3 for requirements that all students in the university must meet.

**College Requirements.** Before proceeding to upper-division work, students registered in the College of Business and Economics must: (1) complete at least 58 semester credit hours with a minimum cumulative grade-point average of 2.00, and (2) complete and earn at least a 2.35 grade-point average in Econ 272 Foundations of Economic Analysis or Econ 201-202 Principles of Economics; Acct 205 Fundamentals of Accounting or Acct 201-202 Introduction to Financial Accounting and Introduction to Managerial Accounting; BLaw 265 Legal Environment of Business; and Stat 271 Statistical Inference and Decision Analysis, or Stat 251 Principles of Statistics. Students who enroll in Stat 251 must also complete Stat 262 Decision Analysis, before or during their first semester of upper-division CBE course work; however, the grade received in Stat 262 is not included in the minimum 2.35 grade-point average requirement.

A student is required to take at least 64 credits of nonaccounting, nonbusiness law, and nonbusiness course work. Undergraduate students enrolled as majors in the College of Business and Economics may not take any course required for the major on a pass/fail basis, with the exception of those courses offered only on a P/F basis.

Courses completed at a two-year college for transfer into the CBE core or major must be validated before they will be accepted for upper-division course requirements. Validation procedures are established by the faculty members of the CBE department offering these courses. Validation techniques include a proficiency examination, CLEP testing, or successful completion of an additional advanced course in the given field.

Candidates for the B.S.Bus. degree must be accepted officially as majors in the College of Business and Economics for at least their last two semesters before graduation, excluding summer sessions, and complete at least the last 24 credit hours applicable toward their degree during this period.

At least 50 percent of the College of Business and Economics credit hours applied to a B.S.Bus. degree must be earned at the University of Idaho.

All majors require the completion of at least 128 credit hours. The required program of study includes: (1) at least 64 credit hours of nonaccounting, nonbusiness law, and nonbusiness course work, (2) 34 credit hours in the business and economics core, and (3) the major-specific required credit hours in the selected CBE major field. Additional undesignated electives are included in the 128 required credit hours.

A. *UNIVERSITY/CBE GENERAL CORE REQUIREMENTS:*

Communication:
- Comm 101 Fundamentals of Public Speaking (2 cr)
- Engl 101 Introduction to College Writing (3 cr)
- Engl 102 College Writing and Rhetoric (3 cr)

Engl 207 Persuasive Writing or Engl 208 Personal and Exploratory Writing or Engl 209 Inquiry-Based Writing or Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)

Mathematics:

At least two courses in mathematics numbered 130 or higher including at least one course in calculus (7-8 cr)

Stat 271 Statistical Inference & Decision Analysis; or Stat 251 Principles of Statistics and Stat 262 Decision Analysis (4 cr)

Social Sciences:

Econ 272* Foundations of Econ Analysis or Econ 201, 202 Principles of Econ (4-6 cr)

Social science elective** (3 cr)

Humanities:

Phil 103 Ethics (3 cr)

Humanities elective** (3 cr)

Literature elective (3 cr)

Natural and Applied Sciences:

Natural and applied sciences electives** (8 cr)

Other courses:

Acct 205 Fundamentals of Accounting or Acct 201-202 Intro to Financial Acct and Managerial Accounting (4-6 cr)

Bus 100 The Business Profession (1 cr)

BLaw 265 Legal Environment of Business (3 cr)

Nonbusiness electives (8-10 cr)

* Students selecting Econ 272 must take one additional UI core course in humanities or social science.

**To be chosen from courses that will satisfy regulation J-3; accounting majors must select Anth 100, Psyc 101, or Soc 101 under social sciences.

B. *CBE COMMON PROGRAM REQUIREMENTS:*

Acct 310 Accounting for Business Decisions I (2 cr)
Acct 311 Accounting for Business Decisions II (2 cr)
Bus 340 Team Building and Group Dynamics (2 cr)
Bus 341 Business Systems (4 cr)
Bus 342 Product and Process Planning (3 cr)
Bus 343 Planning and Decision-Making in Organizations (2 cr)
Bus 344 Managing the Firm's Resources (3 cr)
Bus 345 Business Operating Decisions (3 cr)
Bus 490 Strategic Management (3 cr)
Econ 340 Managerial Economics (2 cr)
Upper-division economics electives (3 cr)

C. *REQUIREMENTS IN MAJOR* (major-specific required credits).

D. *ELECTIVES*. Chosen in consultation with the student's advisor.

## Undeclared Status

A student may enter CBE as a freshman in an undeclared status. Because the first two years are nearly equivalent programs in all CBE majors, he or she may remain in the undeclared status until reaching junior level (completion of 58 credits). At that time, a major in the college should be selected. The undeclared status allows a student time to become acquainted with the majors within the college and to solidify career objectives before choosing a major.

# College of Education

**Jeanne S. Christiansen, Interim Dean (301 Educ. Bldg.; 208/885-6772); Jerry L. Tuchscherer, Associate Dean.**

The College of Education was organized as an independent unit of the university in 1920. It is the principal teacher-education unit and consists of the Division of Adult, Counselor, and Technology Education, Division of Health, Physical Education, Recreation and Dance, and the Division of Teaching, Learning, and Leadership. Undergraduate programs leading to degrees in teaching fields are offered in business education, dance (teaching option), elementary education, industrial technology education, marketing education, physical education, school and community health education, secondary education, special education, technology education, and professional-technical education (teaching option). Programs leading to non-teaching degrees include: athletic training, dance, industrial technology, office administration, physical education, recreation, and sport science.

The education of professional personnel for the public schools constitutes a critical service to the state and its people and to the education profession. One of the first duties of the college is that of ensuring that anyone who applies for admission to a program leading to educational service is qualified by preparation and personal attributes for this important work. Once admitted, the student completes a program in which competence in a broad, general education, the professional functions of the teacher, and the subjects and/or skills to be taught are demonstrated.

Besides preparing personnel for the schools, the college provides educational leadership for the people of Idaho, to the state's education system, and to the teaching profession through consultation, participation in organizational activities, and research. Preparation is provided in all of the major areas of professional education.

## Accreditation and Program Approval

The College of Education is fully accredited by the National Council for the Accreditation of Teacher Education and the National Association of State Directors of Teacher Education and Certification. The programs of study in education are planned to meet certification requirements in Idaho, those of most other states, and the requirements of the various accrediting agencies, such as the Northwest Association of Schools and Colleges.

## Admission Requirements

**Admission to the University**. For a statement of general undergraduate and graduate admission requirements, see Part 2 of this catalog.

**Transfer Students.** Students who have attended college, whether at another institution or in another division of the university, before matriculation in the College of Education, must have a grade-point average of 2.00 (C) or better. The approval of the dean of the College of Education is necessary for the admission of transfer students.

## Degrees and Programs Offered

**Undergraduate.** Baccalaureate degrees offered in the College of Education are the Bachelor of Science in Education, Bachelor of Science in Business Education, Bachelor of Science in Dance, Bachelor of Science in Office Administration, Bachelor of Science in Physical Education, Bachelor of Science in Recreation, and Bachelor of Science in Technology. See Part 5 for the programs of studies leading to these degrees.

**Graduate.** The College of Graduate Studies offers work toward advanced degrees in several disciplines of the college. Students must fulfill the requirements of the Graduate College and of the division in which they intend to study. Consult the College of Graduate Studies section of Part 4 for further information.

Upon the completion of the appropriate programs of study, the following degrees are conferred: Master of Science, Master of Education, Education Specialist in Adult Education, Education Specialist in Counseling and Human Services, Education Specialist in Education, Education Specialist in Educational Leadership, Education Specialist in School Psychology, Education Specialist in Special Education, Education Specialist in Professional-Technical Education, Doctor of Education, and Doctor of Philosophy.

Studies at the master's level are offered in adult education, business education, counseling and human services, curriculum and instruction, educational leadership, educational technology, industrial technology education, physical education, recreation, special education, and professional-technical education.

Doctoral candidates majoring in education may concentrate in adult education, counseling and human services, education, educational leadership, elementary education, higher education, physical education, secondary education, special education, or professional-technical education.

## Teacher Education Programs

At the University of Idaho, the preparation of teachers is a cooperative enterprise between the College of Education and other colleges. Coordination is achieved through the Teacher Education Coordinating Committee. The screening of all applicants for admission to Teacher Education Programs is the responsibility of the College of Education, and the dean of the College of Education is the recommending authority for certification.

Students preparing for a career in secondary teaching have the option of completing their bachelor's degrees in the College of Education (except for agricultural education, family life education, and music education) or in the department of their subject major.

Secondary teacher education students have an advisor from the College of Education who is the primary advisor on teacher education requirements, and an advisor from the academic discipline. When a student identifies teacher education as his or her objective (this could be as early as the freshman year and certainly no later than admission to Teacher Education Programs), the education advisor is designated.

Entry into teacher education programs is a multiple step process. Prospective teacher education candidates work closely with academic advisors to assure that they meet the criteria for each step in the process.

**Screening for Teacher Education Programs.** Enrollment in ED 201, Diverse Learners in Schools and Social/Cultural Contexts, carries the following prerequisites: (1) evidence of 25 hours of experience working with children and/or youth (form available from advisor), (2) demonstration of competence in basic skills, and (3) demonstration of competence in computer technology. These courses and experiences are usually completed during the freshman year or the year prior to beginning the education core sequence (ED 201, Diverse Learners in Schools and Social/Cultural Contexts; ED 301, Principles of Learning and Development in Education; ED 302, Curriculum, Instruction, and Assessment Strategies; and ED 401, Professional Role Development).

**Admission to Teacher Education Programs.** Upon completion of the first semester of the sophomore year and a minimum of 36 credits, all students who plan to enter teacher education programs must make application for admission to the program. Criteria for admission to teacher education programs include (1) completion of 100 hours of experience working with children and/or youth (form available from advisor), (2) recommendation of the ED 201 course team based on an evaluation of basic skill use, course performance, and characteristics for teaching, (3) cumulative grade-point average of 2.75 or better with a minimum of 36 credits, and (4) signature of authorized advisor. The approval of the College Admission, Petition, and Retention Committee is required for admission to teacher education programs.

**Continuation in Teacher Education Program.** Students seeking to continue in teacher education programs must have the recommendation of the ED 301 course team based on an evaluation of basic skill use, course knowledge, and characteristics for teaching.

**Eligibility for Internship Year.** Prospective teachers seeking to enter the internship year must meet the following criteria: (1) cumulative grade-point average of 2.75 or higher, (2) recommendation of the ED 302 course team based on an evaluation of basic skill use, course knowledge, and characteristics for teaching, (3) completion of background check, (4) completion of content test(s), (5) completion of the Idaho Technology Performance Assessment, and (6) recommendation of program faculty.

**Exit from Program.** Prospective teachers seeking a recommendation for a teaching credential must meet the following criteria: (1) cumulative grade-point average of 2.75 or higher, (2) completion of an exit interview at the conclusion of the internship year, and (3) recommendation from internship team.

The College of Education does not permit students enrolled in any student teaching or internship course to concurrently function as head coach in any school sponsored sport at any grade level, whether paid or voluntary. Students who desire to function as assistant coaches must have written approval of the division chair and the director of clinical experiences (adopted 1996).

## Graduate Practicum and Internship in School Positions

**Admission.** Admission to practicum and internship courses is conditioned upon acceptance in a graduate program and approval of the major professor and/or student's committee.

**The Program.** Graduate students are provided clinical experience in the study of teaching and learning and in the performance of other school positions through graduate practica and internships (see courses 597 and 598 in the various subject fields in the college).

## Teacher Certification

Students who complete Teacher Education Programs at the university are eligible to receive the Idaho Elementary School Certificate, the Secondary School Certificate, the Exceptional Child Certificate, or the Standard Professional-Technical Certificate. Students who complete the certification program in school counseling or school psychology qualify for the Idaho Pupil Personnel Services Certificate. Students completing a master's degree, specialist degree, or doctorate in educational administration may qualify for an administrator's certificate. The College of Education reserves recommendations for initial teacher certification to students who have completed the approved teacher preparation program and hold a bachelor's degree. The student initiates the certification process through the dean's office in the College of Education.

## Certification-Only for Elementary, Secondary, and Special Education

**Elementary Education Certification**. Students who are seeking certification as an elementary teacher satisfy the requirements for the Idaho Elementary School Certificate, endorsed grades K-8, by meeting the general education requirements outlined by the state, completing the professional education core, and by completing the elementary major and an area of concentration.

**Secondary School Teaching Certification.** Students who are seeking certification while enrolled in an academic major or after completion of a degree normally satisfy the requirements for the Idaho Secondary School Certificate by including Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology, and the professional education core as electives in their program for the baccalaureate degree, and by completing one of the following options: (1) one 45-credit teaching major; or (2) one 30-credit teaching major and one 20-credit teaching minor.

**Special Education Certification.** Students who are seeking certification as a special education teacher satisfy the requirements for the Idaho Exceptional Child Certificate, endorsed grades K-12, by meeting the general education requirements outlined by the state, completing the professional education core, and by meeting the requirements for the elementary or secondary education major.

**Certification Checklists.** Checklists for the elementary, secondary, and special education certification programs are available through the Division of Adult, Counselor, and Technology Education, the Division

of Health, Physical Education, Recreation, and Dance, and the Division of Teaching, Learning and Leadership. See the Academic Majors list in this section to locate the appropriate division.

**Application for Certification.** See procedures listed under Teacher Certification in this section.

## General Requirements for Graduation

**University Requirements.** See regulation J in Part 3 for requirements that all students in the university must meet. When appropriate, courses listed in J-3 may satisfy both the university requirements and the college requirements.

**College Requirements**. All candidates for a baccalaureate degree in the College of Education must complete 128 semester credits, of which at least 36 must be in upper-division courses. (In Part 5, see the Division of Health, Physical Education, Recreation and Dance for the special requirements applicable to the major curricula in athletic training, dance, physical education, recreation, school and community health education, sport science; the Division of Adult, Counselor and Technology Education for the major curricula in business education, industrial technology, marketing education, office administration, professional-technical education, technology education; and the Division of Teaching, Learning, and Leadership for the major curricula in elementary education, special education and secondary education.)

**Elementary and Secondary Teaching Common Requirements:**

Idaho Technology Competency Certification
Literacy methods course (EDTE 320 Foundations of Literacy Development or EDTE 463 Literacy Methods for Content Learning (3-4 cr)
Professional Education Core Requirements:
- ED 201 Diverse Learners in Schools & Social/Cultural Contexts (3 cr)
- ED 301 Principles of Learning & Development in Education (3 cr)
- ED 302 Curriculum, Instruction, & Assessment Strategies (3 cr)
- ED 401 Professional Role Development (3 cr)

Internship (14-28 cr)

**General Studies Requirements for Elementary School Teaching:**

**Communications** (8 credits) including essay writing, Engl 102 (3 cr); advanced composition, Engl 207, 208, 209, 291, 292, 309, 313, 317 or 401 (3 cr); and speech, Comm 101 (2 cr)
**Humanities** (7 credits) including literature (3 cr); art (non-methods course) (2 cr); and music (2 cr) (non-methods course)
**English** (3 credits) English composition (excluding Engl 101) or literature
**Developmental Psychology** (3 credits) Psyc 305
**Social Science** (12 credits) including Hist 101 or 102 (3 cr); Hist 111 or 112 (3 cr); and 6 other credits from social sciences (other than psychology)
**Science** (11- 12 credits) including Intr 103 (4 cr); and 3-4 credits each from the areas of (a) life sciences, and (b) earth sciences *or* physical sciences
**Mathematics** (9 credits) including Math 143 (3 cr), Math 235 & 236 (6 cr)

**General Studies Requirements for Secondary School Teaching:**

**Communications** (8 credits) including essay writing, Engl 102 (3 cr); advanced composition, Engl 207, 208, 209, 291, 292, 309, 313, 317 or 401 (3 cr); and speech, Comm 101 (2 cr)
**Psychology** (3 credits) Psyc 101 or Psyc 305
**Mathematics** (3 credits) A mathematics or statistics university core course

## Major Curricula

Students in the College of Education must complete a major curriculum that leads to a degree granted by the college (B.S.Dan., B.S.Ed., B.S.Bus.Ed., B.S.P.E., B.S.Rec., B.S.Tech., or B.S.O.Ad.). These major curricula (with the degree goal identified) are listed in Part 5.

Careful distinction should be made between a student's "major curriculum" and any additional "teaching majors" or "teaching minors" leading to certification.

## Centers and Institutes

Centers and institutes affiliated with the College of Education support the mission of the college and extend services to the state, region, and nation. Programs offered through the college are enriched and extended as a result of these initiatives. Historically, the College of Education established the Center for Educational Research and Public Service (CERPS). CERPS was established to conduct research, to facilitate research by College of Education faculty members and graduate students, and to be of assistance to local school districts and other educational units. More recently, additional centers and institutes have been established. They are listed below; additional information about them can be accessed at the college web site:

Center for Disabilities and Human Development
Center for Dance
Center for Economic Education
Center for ETHICS
Idaho Teaching resource Center for Professional Technical Education
Institute for Mathematics, Instructional Technology, and Science Education
TRIO Programs
University Wellness Program

## ACADEMIC MAJORS LEADING TO TEACHER CERTIFICATION

Ag Education (B.S.Ag.Ed.) – Department of Agricultural and Extension Education
Art Education (B.S.Art.Ed.) – Department of Art
Business Education (B.S.Bus.Ed.) – Division of Adult, Counselor and Technology Education
Elementary Education (B.S.Ed.) – Division of Teaching, Learning and Leadership
Family and Consumer Science Education (B.S.F.C.S.) – Margaret Ritchie School of Family and Consumer Science
Marketing Education (B.S.Bus.Ed.) – Division of Adult, Counselor and Technology Education
Music Education (B.Mus.) – Lionel Hamption School of Music
Physical Education (B.S.Ed.) – Division of Health, Physical Education, Recreation and Dance
School and Community Health Education (B.S.Ed.) – Division of Health, Physical Education, Recreation and Dance
Secondary Education (B.S.Ed.) – Division of Teaching, Learning and Leadership (see list below)
Special Education (B.S.Ed.) – Division of Teaching, Learning and Leadership
Technology Education (B.S.Ed.) – Division of Adult, Counselor and Technology Education

## TEACHING MAJORS AND MINORS IN THE B.S.ED-SECONDARY EDUCATION PROGRAM

### 45-CREDIT TEACHING MAJORS

Biological Sciences (60 cr)
Chemistry
Earth Science
Earth Science (60 cr)
English
French
German
History
Latin
Mathematics
Physical Science-Life Science (60 cr)
Physical Sciences
Physics
Social Science
Spanish
Theatre Arts
Theatre Arts-Speech

### 30-CREDIT TEACHING MAJORS

English
Geography
Journalism
Mathematics
Political Science
Psychology
Speech

### 20-CREDIT TEACHING MINORS

Art
Biological Sciences
Business Education
Chemistry
Computer Science
Consumer Economics
Dance
Economics
English
English As a Second Language
French
Geography
Geology
German
Health Education
History
Industrial Technology
Journalism
Latin
Library Science
Mathematics
Music: Vocal
Physical Education (Secondary)
Physics
Political Science
Psychology
Sociology/Anthropology
Spanish
Speech
Theatre Arts

# College of Engineering

**David E. Thompson, Dean (125 Janssen Engr. Bldg.; 208/885-6479); Howard S. Peavy, Associate Dean, Academic and Student Affairs; Steven G. Penoncello, Associate Dean, Research and Graduate Programs; Barry G. Willis, Associate Dean, Outreach.**

The mission of the college is to prepare students for professional practice, admission to advanced degree programs, leadership in the profession, and lifelong learning; to promote the discovery, development, and dissemination of knowledge through excellence in research; and to contribute to the economic development of the state, region, and nation. To this end, the college provides statewide access to high quality educational programs leading to baccalaureate and advanced degrees in engineering and computer science as described below.

## The Engineering Profession

Members of the engineering profession use their knowledge of mathematics and the sciences to create useful and economic devices, structures, and systems for the benefit of the earth and its inhabitants. The engineer's talents are used in many ways: design, construction, and operation of public works and utilities systems; planning, construction, and operation of industrial processes and equipment; application of technical products; and creation of devices and systems needed for the support of all human activity, such as food production, transportation, communication, and enhancement of the environment. Many engineers hold responsible managerial positions; others are key members of the interdisciplinary teams that solve the complex technical, economic, and social problems of the world.

The engineering profession recognizes that social, economic, political, and cultural, as well as technical considerations are involved in most of the works in which the modern engineer is engaged. A part of an engineer's education is devoted to the humanities and the social sciences to help him or her relate the technical preparation received to the world today and enhance the engineer's role as an educated, responsible citizen.

To qualify as an engineer, one usually undertakes a four-year college program leading to a Bachelor of Science (B.S.) degree in one of the major branches of engineering practice. Bachelor of Science graduates may either go directly into engineering employment or proceed to graduate study to pursue a given area of interest in depth. As the technology of engineering includes a wide range of subject matter that can be explored only to a limited extent in an undergraduate program, more and more students undertake graduate study for better preparation in a specific field before seeking employment as practicing engineers.

All states require that engineers engaged in work affecting public health and welfare be licensed or registered. This requires a qualifying examination in fundamentals of engineering, usually taken during the last year of undergraduate study, and a period of practical experience followed by a second qualifying examination in the practice of engineering. Many industries, while not legally required to use registered engineers, encourage registration as evidence of professional stature of their engineering employees.

## The Computer Science Profession

Computer science is a discipline that involves the understanding and design of computers and computational processes. In its most general form it is concerned with the understanding of information transfer and transformation. Computer science is evolving rapidly and includes theoretical studies, experimental methods, and engineering design all in one discipline. In computer science there is an inherent intermingling of the theoretical concepts of computability and algorithmic efficiency with the modern practical advancements in electronics that continue to stimulate advances in the discipline. It is this close interaction of the theoretical and design aspects of the field that binds them together into a single discipline.

Because of the rapid evolution it is difficult to provide a complete list of computer science areas. Yet it is clear that some of the crucial areas are theory, algorithms and data structures, programming methodology and languages, and computer elements and architecture. Other areas include software engineering, artificial intelligence, computer networking and communication, database systems, parallel computation, distributed computation, computer-human interaction, computer graphics, operating systems, numerical and symbolic computation, and computer security.

A professional computer scientist must have a firm foundation in the crucial areas of the field and will most likely have an in-depth knowledge in one or more of the other areas of the discipline, depending on the person's particular area of practice. Thus, a well-educated computer scientist should be able to apply the fundamental concepts and techniques of computation, algorithms, and computer design to a specific design problem. The work includes detailing of specifications, analysis of the problem, and provides a design that functions as desired, is reliable and maintainable, and meets desired cost criteria. Clearly, the computer scientist must not only have sufficient training in the computer science areas to be able to accomplish such tasks, but must also have a firm understanding in areas of mathematics and science, as well as a broad education in liberal studies to provide a basis for understanding the societal implications of the work being performed.

## Equal Opportunity

The degree programs of the college and the professions they represent actively seek out women and under-represented minorities. Opportunities are unlimited and an increasing number are entering the professions.

## Preparation and Admission

A statement of undergraduate and graduate admission requirements is included in part 2. A student may be admitted with less than the requirements listed, but the deficiency must be made up before he or she can progress very far in a college engineering course of study.

Students who contemplate entering the College of Engineering with advanced standing from other institutions should complete as many of the freshman and sophomore requirements listed in the curricula as possible. Calculus and the various introductory engineering courses are prerequisites to many advanced courses, and their omission may delay graduation.

Students from out-of-state institutions who wish to transfer to a degree program offered by the College of Engineering are invited to apply. Those whose cumulative GPA is below 2.8 for all previous college-level courses, including any courses taken at UI, may be admitted on approval of the College of Engineering Admissions Committee.

## Admission to Classes

As a prerequisite to any upper-division course normally taken in the junior or senior year and offered by the College of Engineering, students in the College of Engineering must have completed selected courses from the required courses in chemistry, computer science, engineering, mathematics, and physics that are normally to be taken by them during their first two years and must have attained a grade of C or better in each of those courses.

## Scholarships and Awards

Many scholarships and awards are available to College of Engineering students and prospective students. See "Financial Aid" in the student service section of Part 2.

## Courses of Study and Degrees

The College of Engineering includes the degree-granting Departments of Biological and Agricultural, Chemical, Civil, Electrical and Computer, and Mechanical Engineering, and Computer Science. Careful attention is given to curriculum content and educational philosophy to keep all programs attuned to rapidly changing technology.

Programs in the college lead to the Bachelor of Science in eight disciplines, i.e., Bachelor of Science in Agricultural Engineering, Bachelor of Science in Biological Systems Engineering, Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Computer Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering, and Bachelor of Science in Computer Science.

All engineering B.S. degree programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

The Bachelor of Science program in computer science is accredited by the Computer Science Accreditation Commission of the Computer Science Accreditation Board (CSAC/CSAB).

Most of the courses taken by freshmen and sophomores are the same in all curricula. The student may postpone a final decision on a branch of study for a year or more with little, if any, consequence, thus allowing ample opportunity for professional orientation. The junior and senior years are devoted to application of basic principles in the various fields of practice.

Courses of study leading to the degrees of Master of Science (M.S.), Master of Engineering (M.Engr.), and Doctor of Philosophy (Ph.D.) are offered in agricultural, chemical, civil, electrical, and mechanical engineering. The M.S. and M.Engr. degrees are available in computer engineering, and the M.S. and Ph.D. degrees are available in computer science. The Master of Engineering in engineering management and in system engineering is also available. Through the facilities at the UI/Idaho Falls Center for Higher Education, the M.S., M.Engr., and Ph.D. degrees are available in nuclear engineering.

## Faculty

The faculty is the key to the quality of the engineering program. With few exceptions, faculty members in this college hold advanced engineering degrees; more than 97 percent hold the Ph.D. degree. Recognition in such publications as *Who's Who in America, Who's Who in the West, Who's Who in Engineering,* and *American Men and Women of Science* is common.

A distinguishing feature of the faculty is a blend of academic and practical experience. Many faculty members have extensive experience in practice that they bring into the classroom, preserving a balance between theoretical and practical aspects of engineering.

## Facilities

The facilities of the College of Engineering are among the finest in the country. Work is centered in the two-block-square engineering complex, which includes the Allen S. Janssen Engineering Classroom Building, the J. E. Buchanan and newly renovated Gauss-Johnson Engineering Laboratories, and the Engineering/Physics Building. These facilities are supplemented by agricultural engineering laboratories at other locations on the campus. In total, more than 250,000 square feet of floor space is available for the special use of the College of Engineering. Laboratories include modern equipment for teaching and research in all areas of instruction with recent additions for computerized drafting, CAD/CAM, computerized VLSI design, and robotics. Some of the equipment is of advanced design found in only a few institutional laboratories. Students also have access to over 20 general purpose open-access computer laboratories across the campus, with over 600 computers. There are over 100 software applications available, as well as the web, email, and other network services. An assortment of Hewlett Packard

minicomputers and engineering work stations, and various types of smaller computers are available within the engineering complex.

## Standing and Advantages

With a tradition of excellence dating from the founding of the University of Idaho, the College of Engineering has developed engineering bachelor's degree programs on the Moscow campus that are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. For over 40 years, graduate programs in several disciplines have been available at off-campus sites as well. Since 1896, when it granted its first degrees, graduates of the college have spread throughout the world. The large number of firms and agencies from throughout the country that send interviewers to the campus each year seeking to hire Idaho engineering graduates attest to the reputation of the university's engineering program.

The size of the college is near the median of engineering colleges in the country. It is not so large that the importance of the student as an individual is lost; it is large enough to support the faculty and facilities needed for top quality education.

Attention is given to both undergraduate and graduate programs. New concepts and knowledge resulting from the graduate program feed into the undergraduate program to keep it up to date. Undergraduate students have an opportunity to observe graduate projects to help them ascertain their interest in graduate work so that the student is better prepared and more soundly motivated if he or she does proceed to graduate work.

## Engineering Experiment Station

The function of the Engineering Experiment Station is to encourage and coordinate the College of Engineering's research and extension programs that are integral parts of the college's academic and service efforts.

The research program in engineering is conducted by the regular faculty and students of the college. There is neither a separate research facility nor a separate research staff. The College of Engineering requires that any research it undertakes have academic significance. A large part of the college's research program deals with developing new knowledge that is applicable to Idaho's economy or devising new methods or applications for using existing knowledge to the benefit of the state. Most of the funds in support of research come from sources other than legislative appropriations. These funds are the result of research contracts and grants with various local, state, and federal agencies and private industry. Information regarding research capabilities is available upon request.

Believing that education is a never-ending need of mankind, the College of Engineering, through the means of short courses, workshops, seminars and forums, and pertinent publications, attempts to ascertain and meet the specific continuing education needs of Idaho's graduate engineers, computer scientists, and the technical community. Staff members also endeavor to provide information to the entire population of Idaho that may contribute to the successful solving of societal problems.

## Off-Campus Programs

To fulfill its charge to provide engineering education to the people of Idaho, the College of Engineering provides several degree programs off campus. Graduate degrees in all disciplines are available through the Resident Instructional Centers at Boise, Idaho Falls, and Coeur d'Alene, using a combination of resident faculty and video courses. The Engineering Outreach program uses a variety of technologies to provide graduate and advanced undergraduate course work, including some complete master's degrees, at any location. For more information, see "Resident Instructional Centers" in part four.

## General Requirements for Graduation

**University Requirements.** See regulation J in Part 3 for requirements that all students in the university must meet.

**College Requirements.** The minimum credit requirement for university curricula is 128 credits. Some engineering curricula require a higher number of credits--see individual curricula in part 5.

Note: In calculating the credit total for each degree, the College of Engineering does not include credits that a student may have been required to earn in Engl 101, Math 143, and any courses taken to remove deficiencies.

## Major Curricula

The curriculum for each major is listed in Part 5 by department. Each curriculum provides for electives to be arranged in consultation with the student's advisor in accordance with the student's interest and consistent with current department and college policies. The electives are intended to provide flexibility in the student's program. Undesignated electives will usually be taken outside of the student's major field of study.

# General Studies Program

**Kurt O. Olsson, Director (112 Admin. Bldg.; 208/885-6426); Tammy Bowen-Baldwin, Freshman/Sophomore Advisor, 208/885-6307; Kristine A. Roby, Junior/Senior Advisor, 208/885-6426.**

The General Studies program, in which students at any level of competence may enroll, serves students in two ways. General Studies is elected by many entering students who wish to examine a number of possible academic and career options before selecting a major in a traditional discipline. Additionally, students may major in General Studies, developing a coherent program of study (see below) with their advisor. Students in the General Studies program may transfer to any degree program at any time if they satisfy the grade-point and curricular requirements of those programs.

## Admission to the Program

New students wishing to enroll in the General Studies program may indicate their choice on the application form for admission to the university. Students currently enrolled in one of the colleges of the university may transfer to the program by applying to the director.

## General Regulations

Students participating in General Studies while exploring their choice of majors have no restrictions or required courses. These students are advised to satisfy core requirements while taking classes that will move them toward a reasoned career decision. Particular attention is paid to identifying critical prerequisite courses so that students are able to enter a major on track for graduation. Students may transfer from General Studies to a new major at any time if they satisfy the prerequisite and grade-point requirements of that major. Students must have at least a 2.00 grade-point average to transfer into many of the university's colleges.

A student ineligible to be in or continue in the College of Business and Economics may take no more than 9 credits of upper-division course work in that college (except for Bus 362, Real Property Appraisal, and Bus 364, Insurance). Students graduating in General Studies may exceed the nine-credit limitation with consent of their advisor and permission of the College of Business and Economics.

## Bachelor of General Studies Curriculum

The curriculum leading to the degree of Bachelor of General Studies is designed to provide maximum flexibility for undergraduates while planning their program of studies. Since the only specific subject requirements are the general university requirements, students can plan their programs to the best advantage of their particular educational objectives. This means that students must bear the major responsibility for their choice of courses. Those who plan wisely have the opportunity to obtain an excellent education. The key admonition is: plan your program carefully.

The major thrust of the B.G.S. degree program is nonspecialized education. Although a student could take his or her work in a limited number of departments, the intent of this program is to permit great latitude in the choice of subjects so that students may satisfy their particular objectives. No student may become a candidate for the B.G.S. degree who has already earned a baccalaureate degree or who is a candidate for another degree offered by the university.

**Major.** No major other than "general studies" will be certified on the student's diploma or official transcript. Students who wish to have a designated major should pursue a departmental baccalaureate degree (B.A., B.S., etc.). A student graduating with a Bachelor of General Studies may select a combination of courses that will be the equivalent of a major, but this will not be officially recognized by the university as a major. In such cases, the student is strongly advised to transfer to the major and graduate with a designated degree.

**Minor.** Students graduating with a Bachelor of General Studies may satisfy requirements for one or more minors. In these cases their transcript will reflect these minors.

**Degree Requirements.** In addition to the general university requirements for the baccalaureate degree (see regulation J-3), sufficient electives must be taken to total 128 credits. *A minimum of 48 credits must be earned in courses numbered 300 and above.* Not more than 40 credits in any one subject field may be counted in the 128 credits.

**Suggestions to Students.** Students are advised not to make a firm decision with respect to the B.G.S. degree before the end of the freshman year. During the freshman year, and probably during the sophomore year, students should consider following one of the curricula leading to a departmental baccalaureate degree, deviating from the departmental requirements only where it appears educationally advisable to do so.

It is very important that the student working toward the B.G.S. "look ahead" to see in which departments he or she wishes to accumulate the required 48 credits in upper-division courses (those numbered 300 and above). Many upper-division courses have prerequisites that must be completed during the early semesters of the student's undergraduate career. If planning is delayed, it may be that some courses will be "unavailable" because the student has not taken the prerequisites.

# College of Graduate Studies

**Charles R. Hatch, Vice President for Research and Graduate Studies (104 Morrill Hall; 208/885-6243); Roger P. Wallins, Associate Dean.**

The College of Graduate Studies was formally organized in 1925 (then designated as the Graduate School), but the university has awarded advanced degrees since 1897. The Graduate College encompasses all divisions of the university, but does not supervise programs in the College of Law. This coverage of all regular disciplines and professional fields provides a wide variety of academic programs. Enrollments are large enough to make possible the vital interchange of ideas among students and between students and faculty that is necessary for graduate programs, and yet enrollments are sufficiently small to permit close faculty-student relationships. Interdepartmental cooperation is an important factor on the Idaho campus. The university is the chief research center for the state and as such operates active graduate programs in most areas providing a broad research base upon which graduate programs have been built.

## Graduate Council

The Graduate Council is the representative body of and is empowered to act for the Graduate Faculty. It is responsible to and reports to the Graduate Faculty, which retains the authority to review actions of the council. Its function is to promote graduate instruction and research, to formulate policies and long-range plans for the graduate program, and to review and act on student appeals and petitions that involve exceptions to accepted regulations and procedures of the Graduate College.

The Graduate Council is constituted of one member elected by and from the constituent graduate faculty of each of the college-level divisions that offer programs leading to graduate degrees (except the J.D. degree), four members of the Graduate Faculty appointed by the president of the university, two graduate students, the vice president for research and graduate studies, who serves as chair, and the assistant or associate graduate dean, who serves as vice chair.

## Undergraduate Enrollment in the College of Graduate Studies

A senior who has a cumulative grade-point average of 2.80 or higher may register for 500-level courses. Courses will automatically be recorded on the undergraduate record. However, seniors desiring to have courses placed on a graduate transcript must submit to and have approved by the Graduate College a "Course Level Adjustment Form" that specifies the courses to be placed on the graduate transcript, thereby allowing a separate graduate transcript to be established. Capable students who are in their last year can thus begin limited graduate work, up to a total of nine credits, at an earlier date than would otherwise be possible. A "Course Level Adjustment Form" must be completed each semester that transcript separation is desired. Students who have courses placed on a graduate transcript and later wish to be admitted to the graduate college for work on a degree must apply for admission to the Graduate College following the usual procedures. The deadline for filing the "Course Level Adjustment Form" is the tenth date of class for that semester or session. All courses placed on the graduate transcript, regardless of course level, will be assessed graduate fees.

## General Graduate Regulations

The regulations described in this section are the minimum standards established by the faculty of the College of Graduate Studies. Departments may establish additional regulations, including additional residence requirements, above the minimums set by the College of Graduate Studies. Departmental requirements are described in Part 4.

Each student working for a degree through the Graduate College will be advised by a major professor and a supervisory committee (committee is optional for nonthesis degrees). Unclassified students may request the

vice president for research and graduate studies to appoint an advisor to provide guidance.

**Student Responsibilities.** The student is responsible for complying with all rules, procedures, and time limits, as established by the graduate faculty.

**Petitions.** Students and major professors are advised that the right of petition exists to waive or modify some university regulations. Academic petitions request waiver or modification of regulations in Part 3. Graduate petitions request waiver or modification of regulations in this section. However, favorable action can be expected only when circumstances and the presentation clearly justify an exception. Precedents are not set by previous actions and may not form the basis of a petition; rather the situation concerning the student involved is given consideration on an individual basis. A $5 fee is charged for each petition submitted to the Academic Petitions Committee or Graduate Council.

**Registration and Enrollment Requirements.** Graduate students engaged in **ANY** activity requiring faculty or staff time and consultation, or the use of any UI facilities, must register for the number of credits appropriate to the degree of activity involved during the semester of activity. Such activity includes, but is not limited to: writing, defending, or submitting a thesis or dissertation; working on a nonthesis requirement; or taking a preliminary examination.

**Change of Major.** A student is admitted for work in a specified major or program and may not change without approval of the new department. Such procedure is formalized by a change of curriculum form signed by the chair of the program the student is leaving and the chair of the department in which the student wishes to enroll. The form must be approved by the vice president for research and graduate studies before it is forwarded to the Registrar's Office.

**Academic Loads.**

***Credit Requirements for Full-Time Students.*** A student is considered to be engaged in full-time study when registered for nine credits of course and/or thesis/dissertation work. (A student pays full-time fees when taking eight credits, but is nonetheless considered a part-time student.) See also specific credit guidelines under “Financial Aid.”

***Regular Semester or Summer Session.*** The credit limit for a graduate student who is not a full-time graduate assistant is 16 credits a semester or summer session (excluding courses taken for audit and including the credits for courses taken for the zero credit option).

**Correspondence Courses.** Credits earned in University of Idaho correspondence courses are applied to a graduate program only with the prior written approval of the vice president for research and graduate studies. Correspondence courses do not satisfy the residence requirements for final semester registration, and a limited amount of such work can be applied toward a degree. Subject to approval by the appropriate department(s) and/or college, correspondence credits from other institutions that are accepted for graduate credit by that institution may be accepted toward degree requirements. Grades earned in correspondence courses are not calculated into the student's GPA.

**Probation, Disqualification, and Reinstatement.** A graduate student is placed on probation after any semester or summer session in which a grade-point average of less than 3.00 is earned, regardless of the student's cumulative GPA. The student will be disqualified if a GPA of less than 3.00 is earned during the second, consecutive semester or summer session in which regular grades of A, B, C, D, or F are received. If a graduate student who is on probation receives an Incomplete during a semester, the revert grade listed for the Incomplete will be used to calculate the GPA for that semester. If the calculated semester GPA is 3.00 or higher, the student will be in good academic standing. If the calculated semester GPA is less than a 3.00 GPA, the student will not be allowed to register for current or future semesters or sessions. If the student has perchance registered pending receipt of the revert grade, the student will be disenrolled. Once the work is completed and a final grade is given, the GPA will be automatically recalculated. In all other cases, he or she may be reinstated as a graduate student under the following conditions: The student may not take classes for at least one regular semester (fall or spring), must get the positive recommendation of his or her departmental administrator, must get Graduate College permission, and must receive at least a 3.00 grade-

point average the first semester back in the Graduate College. Reinstatement is granted for a specific semester only. If a student does not register for that semester, he or she must again seek Graduate College permission for reinstatement.

**Grade Requirements**. A candidate for an advanced degree must have a cumulative GPA, based on his or her graduate record, of at least 3.00 (A = 4.00). The relevant GPA is calculated as stated in regulation E (Part 3) except that it is based only on grades received: in all courses taken at UI while the student was enrolled in the particular program (major) leading to the degree sought whether or not those courses are on the student's study plan; in courses that were taken at UI before the student enrolled in his or her current program and have been included in that program by the student's committee; and, in the case of candidates for the master's degree, in UI courses 500 and 599 for an aggregate of not more than 10 credits or the department's allowance of research credits, whichever is the lesser (grades received in these courses for credits in excess of this limitation are treated as if the courses were graded P or F). Though courses in which grades of D are received may not be counted toward the satisfaction of degree requirements, those grades are included in the GPA.

**Deficiencies.** Courses that are needed to provide background for the student's program may be taken for zero credit and/or under the pass/fail option, unless the programs advise otherwise. Letter grades attained in courses taken for zero credit will appear on the student's transcript. See rules for the pass/fail option under regulation B-11 in Part 3. When deficiency courses are taken for regular credit the resulting grade will be included in the computation of the grade-point average.

**Catalog Issue.** The pertinent requirements for graduate degrees are those contained in the catalog issue that was in effect at the time of or subsequent to the candidate's entry into a specific graduate program as a degree-seeking student. In any case, the catalog issue designated must have been in effect within seven years of the commencement at which the candidate is to receive the degree.

## General Requirements for Master’s Degrees

**Credits.** All master's degree programs require a minimum of 30 credits. Some master's degree programs may require more. Additional work may be stipulated in individual cases to meet particular objectives or need for additional background. Courses listed on an undergraduate record, professional development courses, or courses on a professional degree transcript are not available to be used toward a graduate degree. No more than three credits of workshop or workshop equivalent courses may be used toward the graduate degree. Credit in course 500 (Research and Thesis) cannot be counted toward the minimum of 30 credits for a nonthesis master's degree. Although no limit is imposed on the number of credits that may be earned in course 500 (Master's Research and Thesis) for degrees with thesis, only a maximum of 10 credits in course 500 can be used to fulfill master's degree requirements. Up to five credits of course number 599 are allowed to count towards a nonthesis master's degree; if a thesis program exists for a department, no more credits of 599 are allowed toward the nonthesis master's degree than half the number of credits allowed for course number 500 toward the department's master's degree.

**Transfer, Correspondence Study, Nondegree Credit, and Overaged Credit Limitation.** The combined total of transfer credits, correspondence credits, nondegree credits, and approved credits more than eight years old at the time the degree is awarded shall not exceed 12 credits for master's programs requiring 36 or fewer credits, and shall not exceed one-third of the total credits in programs requiring more than 36 credits. The student's department may set a lower limitation. Credits can be transferred to UI, with the consent of the student's committee and the vice president for research and graduate studies, only if the institution from which the course credits are being transferred has a graduate program in the course's discipline or, should there be no graduate program in the course's discipline, if an exception has been granted by the vice president for research and graduate studies. All credits used toward graduate degrees must be from regionally accredited American institutions or from non-US institutions recognized by the appropriate authorities in their respective countries. Transfer credits are subject to all other Graduate College rules and regulations.

**Procedures for Overaged Credits.** To be acceptable toward a master's degree, overaged credits beyond the limitation above must be approved by taking the final examination in the equivalent UI course (as

determined by the departmental administrator of the area in which the course is offered) and receiving an A or B grade from the instructor of the course. The results of the examination are submitted to the Graduate College in writing by the departmental administrator of the department in which the course is offered.

**Foreign Language.** There is no Graduate College foreign language requirement for a master's degree; however, some departments require a language examination or special course work.

**Subsequent Graduate Degrees.** An applicant who has a master's degree or is working on a master's degree may obtain a second master's degree, subject to the approval of the vice president for research and graduate studies. Up to six credits of course work used to satisfy the requirements for the first degree may be applied to the second; all other catalog requirements and credit requirements in UI courses must be fulfilled. A student who is enrolled in a doctoral program or who has a doctorate may obtain a master's degree in a different field and use a number of common credits subject to approval by the Graduate Council. A student who has a doctorate may not subsequently obtain a master's degree in the same field.

**Concurrent Graduate/Law Degrees.** UI law courses used toward an approved UI concurrent graduate degree must be approved by the College of Graduate Studies and included in the graduate student's study plan. Courses with grades and credits earned in these approved law courses will be posted to the student's graduate academic record upon completion of the courses and receipt of the approved study plan in the UI Registrar's Office. Grades and credits earned in these approved courses will be calculated into the student's institutional graduate GPA. See the Accounting and Environmental Science sections in Part 5 for additional information on concurrent degrees.

## Specific Requirements for Master's Degrees

**Master of Architecture.** The M.Arch. degree requires a design project. Refer to the Department of Architecture section in part 5 of this catalog for a definition of specific admission and thesis requirements. Of the minimum 30 credits required for the degree, 18 must be at the 500s level; the remainder may include 400s level courses in the major, and 300s or 400s level courses in supporting areas. All credits toward the degree must be earned in residence at UI or during internship and study abroad. A final design project must be accepted.

**Master of Arts.** In some fields, all candidates for the M.A. degree are required to present a thesis; in others the thesis is optional or not required. Consult the departmental section for specific descriptions. Of the minimum 30 credits required for the degree, at least 18 credits must be at the 500s level; the remainder may include 400s level courses in the major and 300s or 400s level courses in supporting areas. For the thesis student, a thesis is required. For the nonthesis student, a nonthesis requirement must be met.

**Master of Arts in Teaching.** The M.A.T. is primarily for certified teachers who wish to strengthen their subject-matter preparation. Enrollment in this program of study requires the consent of the chair of the subject-matter department. The major professor is from the subject-matter department; the co-advisor is from the College of Education. The general requirements of the Graduate College apply except that, of the minimum 30 credits required, only six must be in courses at the 500s level, at least six must be in courses offered by the College of Education at the 400/500-level , excluding workshops, and at least 20 must be in courses in the subject field. These courses may be at the 300s or 400s level, including 300s courses in the major field if they are a part of the logical sequence of study. A written and/or oral nonthesis requirement in the subject field must be met.

**Master of Education.** To complete the M.Ed., a nonthesis degree program, the student must fulfill the program's nonthesis requirements (NTR). Of the minimum 30 credits required, at least 18 must be in courses at the 500s level; the remainder may include 400s level courses in the major and 300s or 400s level courses in supporting areas.

**Master of Engineering.** The M.Engr. is a nonthesis degree. A minimum of 30 credits is required; at least 18 must be in courses at the 500s level and the remainder may include 400s level courses in the major and 300s or 400s level courses in supporting areas. A written and/or oral nonthesis requirement must be met. Majors are offered in agricultural, chemical, civil, computer, electrical, mechanical, and (at the University

of Idaho Center, Idaho Falls, only) nuclear engineering. The prospective student should consult the specific department for special entrance requirements.

**Master of Music.** The M.Mus. degree, depending on the concentration selected, requires a thesis, public graduate recitals, or a final project. No credit is granted for the final project in a nonthesis degree plan and the project is subject to approval of the supervisory committee. Both written and oral nonthesis requirements must be met in all degree options. Of the minimum 30 credits required for the degree, at least 18 must be in courses in the School of Music at the 500s level; the remainder may include 400s level courses in the School of Music and 300s or 400s level courses in other areas.

**Master of Natural Resources.** The M.N.R. program is intended to provide broad-based, advanced training in natural resource management and administration. The M.N.R. degree requires 30 semester credits beyond the bachelor's degree: 20 credits of core courses and 10 credits of restricted electives. Only course work at the 400 or 500 level counts toward the degree. At least 18 of the 30 credits must be at the 500 level. No more than 12 of the 30 credits can be earned at another institution. A comprehensive final examination is required.

**Master of Natural Science.** The M.Nat.Sc. is a nonthesis degree primarily for students who are currently engaged in, or planning to enter, secondary-school or junior-college teaching. Courses in the 300s, 400s, and 500s levels may be included. Of the minimum 30 credits required for the degree, 18 must be earned in one major field, or nine credits in each of two fields. The remaining credits are to be chosen so that the entire program is consistent and serviceable to the student. A major paper must be written in a major area of the program, and a written and/or oral nonthesis requirement is also part of the program. The student's committee consists of at least three members: the major professor and a representative from the major area or areas, and a representative from outside the major area(s).

**Master of Public Administration.** The M.P.A. program includes thesis and nonthesis options. Of the minimum 30 credits required for the degree, at least 18 must be in courses selected from prescribed core areas and 12 in designated optional areas of emphasis as described in the Department of Political Science section in part 5 of this catalog; at least 18 of the 30 credits must be in courses at the 500s level. A public service internship is required of students with no appropriate work experience. For the thesis student, a thesis is required. For the nonthesis student, a nonthesis requirement must be met.

**Master of Science.** In some fields, all candidates for the M.S. degree are required to present a thesis; in others the thesis is optional or not required. Consult the departmental section for specific descriptions. Of the minimum 30 credits required for the degree, at least 18 credits must be at the 500s level; the remainder may include 400s level courses in the major, and 300s or 400s level courses in supporting areas. For the thesis student, a thesis is required. For the nonthesis student, a nonthesis requirement must be met.

## Procedures for Master's Degrees

**Appointment of Major Professor and Committee.** The major professor, a member of the Graduate Faculty, is appointed or chosen as early as possible during the student's first semester. The committee is recommended by the major professor and the student and approved by the departmental administrator and the vice president for research and graduate studies. At least one-half of the members of the committee must be members of the Graduate Faculty. A faculty member may not serve on a committee for a student who is seeking a degree higher than the faculty member has attained. Except for an interdisciplinary program, which requires at least four members, the committee for a thesis degree will consist of at least the major professor as chair, a second faculty member from the major department, and a faculty member representing a discipline outside the major department's discipline(s). A department faculty member who has an adjunct appointment to another department cannot be considered an outside committee member for a student in the faculty member's primary department. The committee advises on the thesis research and conducts examinations as required. Except for students enrolled in an interdisciplinary program, a committee for a nonthesis degree is optional or is often a departmental or college committee. Any changes in the committee membership must receive the approval of the Graduate College on a change in committee form.

**Qualifying Examination.** If such an examination is required, it is conducted according to departmental procedures and is a prerequisite to the preparation of a study plan. A report of this examination is not turned in to the Graduate College.

**Preparation of Study Plan.** Early in the student's academic career, the student prepares in conference with the major professor (and committee, if applicable) a master's degree study plan outlining all course work to be completed to fulfill the requirements for the degree. Normally the study plan will include some work to be taken outside the major department. The study plan is prepared on forms provided by the Graduate College and is approved by the student's committee, departmental administrator, and vice president for research and graduate studies. Any subsequent changes in the study plan must be submitted for approval to the Graduate College on a standard form for study plan changes.

**Application for Advanced Degree**. The Application for Advanced Degree, obtained through the Graduate College, is submitted to the College of Graduate Studies office prior to the last day of the previous semester in which graduation is intended. This application deadline is listed on the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration. A student who files an application and does not graduate, but does not request that the application be withdrawn, must pay an additional fee to reinstate the application.

**Registration Requirements.** A graduate student defending and/or submitting a thesis must be registered for thesis credit. A graduate student in a nonthesis program must be registered during the semester in which the nonthesis requirements are completed. Note that correspondence courses do not satisfy the residence requirements for final semester registration. See also "Registration and Enrollment Requirements" under general regulations. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

**Nonthesis Requirement (Nonthesis Degree).** This examination, presentation, or project is completed after the completion of most or all of the degree requirements. The department establishes format and time frame, and reports the results of the nonthesis requirement to the Graduate College. The examination, presentation, or project, if failed, may with departmental approval be repeated once. The interval before the second attempt may not be less than three months or longer than one year. Up to one credit received for completing the examination, presentation, or project may be used toward the degree. If a student fails the examination, presentation, or project twice, or the department does not allow the student to repeat the examination, presentation, or project after the first failure, or the student does not retake the examination or redo the presentation or project within a year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program.

**Final Defense (Thesis Degree).** Before the defense, the Authorization to Proceed with Final Defense form, a page from the "Graduate Handbook for Theses and Dissertations," is submitted to the College of Graduate Studies. The defense is usually oral, but part may be written. The candidate is required to defend his or her work and show a satisfactory knowledge of the major and supporting fields. A recommendation of a majority of the committee is necessary for a candidate to pass this defense. The defense, if failed, may with departmental approval be repeated once. The interval before the second attempt may not be less than three months or longer than one year. Following a successful defense of his or her thesis, the candidate must submit the final copies within six months; otherwise, the candidate must defend the thesis again and may be required to revise it or write an entirely new one. If a student fails the final defense twice, or the department does not allow the student to repeat the defense after the first failure, or the student does not repeat the defense within a year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program.

**Thesis.** Two reproduced copies of approved quality and an additional copy of the title page must be deposited in the Graduate College by the date specified in the *Time Schedule*.

A "Graduate Handbook for Theses and Dissertations," which describes the requirements and makes suggestions for the preparation of theses, should be obtained through the Graduate College. Students must

conform to current rules and regulations of the Graduate College when preparing theses.

## Master of Fine Arts

The University of Idaho awards the degree of Master of Fine Arts in recognition of high achievement in art, creative writing, or theatre arts. The M.F.A. is the professionally recognized terminal degree in the fine arts.

The major professor and department offering a particular M.F.A. program specify the philosophy of the degree program, the objectives of the courses and seminars, the creative areas of concentration available, and requirements peculiar to the department. Admission to an M.F.A. program is granted only to those applicants who have demonstrated abilities and achievements that are judged by the departmental faculty to exhibit the potential for completing the degree.

## Requirements for M.F.A. Degree

**Credit Requirements.** See the specific program requirements in Part 5.

**Transfer, Correspondence Study, Nondegree Credit, and Overaged Credit Limitation.** The use of transfer, correspondence study, nondegree, and overaged credits is subject to the limitations of each program but cannot exceed Graduate College limitations. Credits can be transferred to UI, with the consent of the student's committee and the vice president for research and graduate studies, only if the institution from which the course credits are being transferred has a graduate program in the course's discipline. All credits used toward graduate degrees must be from regionally accredited American institutions or from non-US institutions recognized by the appropriate authorities in their respective countries. Transfer credits are subject to all other Graduate College rules and regulations. Courses listed on an undergraduate record or on a professional degree transcript are not available to be used toward a graduate degree.

**Time Limit.** At the time the master's degree is conferred, no courses used toward the degree can be older than eight years.

**Subsequent Graduate Degrees.** An applicant who has a master's degree or is working on a master's degree may obtain a second master's degree, subject to the approval of the vice president for research and graduate studies. Up to six credits of course work used to satisfy the requirements for the first degree may be applied to the second; all other catalog requirements and credit requirements in UI courses must be fulfilled. A student who is enrolled in a doctoral program or who has a doctorate may obtain a master’s degree in a different field and use a number of common credits subject to approval by the Graduate Council. A student who has a doctorate may not subsequently obtain a master’s degree in the same field.

**Awarding M.F.A. Degrees to Members of the Faculty.** A University of Idaho faculty member with rank of senior instructor or above may not be awarded an M.F.A. degree through the department or corresponding unit in which he or she is employed, unless that faculty member had been admitted to that degree program before attaining such academic rank.

## Procedures for M.F.A. Degree

**Appointment of Major Professor.** Generally the student will be advised initially by the departmental administrator or departmental graduate coordinator. As soon as feasible, with respect to the availability of faculty members in the student's area of concentration, but within three semesters of registration in an M.F.A. program, the student and departmental administrator or graduate coordinator nominate the major professor, who must be a member of the Graduate Faculty.

**Graduate Reviews.** Following departmental procedures, graduate reviews may be conducted annually by department graduate faculty members. The initial graduate review may normally be conducted within the first two semesters of registration in an M.F.A. program, and serves to assess the background of the student

in both major and supporting fields and to provide in part the basis for preparation of the student's study plan.

**Selection of Graduate Committee.** The graduate committee consists at least of the major professor as chair, a second faculty member from the major field, and a member from a discipline outside the major department's discipline(s). A department faculty member who has an adjunct appointment to another department cannot be considered an outside committee member for a student in the faculty member's primary department. At least one-half of the members of the committee must be members of the Graduate Faculty. A faculty member may not serve on a committee for a student who is seeking a degree higher than the faculty member has attained. The committee is approved by the vice president for research and graduate studies in accordance with nomination procedures of the department concerned. The committee assumes the responsibility for directing the student's program under the leadership of the committee chair.

**Preparation of Study Plan.** Within two semesters (or two summer sessions for those attending in the summer only) of registration in an M.F.A. program, the student and major professor or graduate coordinator prepare a study plan, on forms provided through the Graduate College, for approval by the student's committee, the departmental administrator, and the vice president for research and graduate studies. Changes later deemed desirable may be made on a change of study plan form and approved by the committee and the Graduate College. Awarding the degree is based on completion of all items required by the study plan.

**Application for Advanced Degree**. The Application for Advanced Degree, obtained through the Graduate College, is submitted to the College of Graduate Studies office prior to the last day of the previous semester in which graduation is intended. This application deadline is listed on the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration.

**Requirements Registration.** A graduate student defending and/or submitting a thesis must be registered for thesis credit. A graduate student in a nonthesis program must be registered during the semester in which the nonthesis requirements are completed. Note that correspondence courses do not satisfy the residence requirements for final-semester registration. See also "Registration and Enrollment Requirements" under general regulations. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

**Final Defense (Thesis) or Nonthesis Requirement (Examination, Project, or Presentation).** Before the thesis defense or the nonthesis examination, project, or presentation, the appropriate form is obtained through the Graduate College. The thesis defense is usually oral but may be written. The actual time for the defense of the thesis is set by the department, and is scheduled on completion of the thesis work; the candidate is required to defend his or her work and show knowledge of the major and supporting fields. A recommendation of a majority of the committee is necessary for a candidate to pass the defense or nonthesis requirement. The defense or nonthesis requirement, if failed, may with departmental approval be repeated once. The interval before the second attempt may not be less than three months or longer than one year. If the student fails the final defense or nonthesis requirement twice, or the department does not allow the student to repeat the defense or nonthesis requirement after the first failure, or the student does not retake the defense or nonthesis requirement within a year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program. Following a successful defense of his or her thesis, the candidate must submit the final copies within six months; otherwise, the candidate must defend the thesis again and may be required to revise it or write an entirely new one.

**Thesis.** Two reproduced copies of approved quality and an additional copy of the title page must be deposited in the Graduate College by the date specified in the *Time Schedule*.

A "Graduate Handbook for Theses and Dissertations," which describes requirements for the preparation of theses, should be obtained through the Graduate College.

## Education Specialist Degrees

The University of Idaho awards the degree of Education Specialist for students who want an organized program of graduate studies beyond the master's degree, but who may not wish to pursue a doctoral program. Programs are available leading to the degrees of Education Specialist in Adult Education, Education Specialist in Counseling and Human Services, Education Specialist in Education, Education Specialist in Educational Leadership, Education Specialist in School Psychology, Education Specialist in Special Education, and Education Specialist in Professional Technical Education. General requirements for the education specialist degree are described in this section.

## Requirements for Education Specialist Degree

**Credit Requirements**. An acceptable program of at least 60 upper-division and graduate-level semester credits beyond the bachelor's degree is required. Additional credits may be required for those who have master's degrees in other areas of emphasis or who have deficiencies. Credits listed on an undergraduate record, professional development courses, or courses on a professional degree transcript are not available to be used toward a graduate degree. No more than three credits of workshop or workshop-related courses may be used toward a graduate degree. Each student, following advising, will submit for approval to the appropriate department or division a study plan for meeting degree requirements. The study plan then is submitted to the vice president for research and graduate studies for approval.

**Transfer, Correspondence Study, and Nondegree Credit Limitation**. No more than 12 of the last 30 credits may be taken as transfer courses, correspondence courses (with prior written approval of the vice president for research and graduate studies), or nondegree courses. Transfer credits must be from institutions offering graduate programs in the discipline(s) of the course(s) being transferred. All credits used toward graduate degrees must be from regionally accredited American institutions or from non-US institutions recognized by the appropriate authorities in their respective countries.

**Time Limit**. The last 30 credits must have been taken in the eight years preceding the semester in which the degree is awarded.

**Nonthesis Requirement**. The candidate must pass a nonthesis requirement after completion of most of the degree requirements.

## Procedures for Education Specialist Degree

**Appointment of Major Professor**. The major professor, a member of the Graduate Faculty, is appointed as early as possible during the student's first semester in residence.

**Preparation of Study Plan**. Early in the student's academic career, the student prepares, in conference with the major professor, a degree program outlining all work to be completed to fulfill the requirements for the degree. The study plan is prepared on forms provided by the Graduate College and becomes effective on approval by the student's major professor, departmental administrator, and vice president for research and graduate studies. Any subsequent changes in the study plan must be submitted to the graduate college on a standard form.

**Application for Advanced Degree**. The Application for Advanced Degree, obtained through the Graduate College, is submitted to the College of Graduate Studies office prior to the last day of the previous semester in which graduation is intended. This application deadline is listed on the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration.

**Final Semester Registration**. A graduate student must be registered during the semester in which the degree requirements are completed. (See also "Registration and Enrollment Requirements" under general regulations.) Enrollment in correspondence study courses does not fulfill this regulation. A student who

was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

**Nonthesis Requirement**. This written and/or oral examination, project, or presentation is taken after the completion of most or all of the degree requirements. The department establishes time, date, and place, and reports the results of the nonthesis requirement to the Graduate College. Up to one academic credit received for completing the nonthesis requirement may be used toward the degree.

## Doctoral Degrees

The University of Idaho awards the degree of Doctor of Philosophy in recognition of high achievement in scholarly and research activity. The degree of Doctor of Education is granted for high scholarly attainment and in recognition of the completion of academic preparation for professional practice.

The major professor and department offering a particular doctoral program indicate the general philosophy of the degree program, the objectives of courses and seminars, the research specialties available, and requirements unique to the department. Admission to the doctoral program is granted only to those who have a recognized potential for completing the degree. In order to effect an integration of course and research work, students are advised to begin research shortly after entering the program and not wait until much of the course work has been completed.

## Requirements for Doctoral Degrees

**Credit Requirements.** A minimum of 78 credits beyond the bachelor's degree is required; of these, at least 52 credits must be in courses numbered 500 and above, and at least 33 of the 78 credits must be in courses other than 600 (Doctoral Research and Dissertation). Courses numbered below 300 may not be used to fulfill the requirements for a doctoral degree; courses numbered 300-399 may be used only in supporting areas. Individual departments may require additional course work. **Applicants having a doctoral degree may obtain a second doctoral degree subject to the approval of the Graduate Council.** The Graduate Council will establish the requirements for the second degree.

**Transfer, Correspondence Study, and Nondegree Credit Limitation.** A doctoral student must complete at least 39 of the 78 required credits in UI courses while matriculated in the College of Graduate Studies. Credits can be transferred to UI, with the consent of the student's committee and the vice president for research and graduate studies, only if the institution from which the course credits are being transferred has a graduate program in the course's discipline. All credits used toward graduate degrees must be from regionally accredited American institutions or from non-US institutions recognized by the appropriate authorities in their respective countries. Transfer credits are subject to all other Graduate College rules and regulations. Correspondence study courses may be applied to the degree only with the prior written approval of the vice president for research and graduate studies. Courses listed on an undergraduate record, professional development courses, and courses on a professional degree transcript are not available to be used toward a graduate degree.

**Time Limits.** Of the credits submitted to satisfy the requirements for a doctoral degree, a maximum of 30 may be more than eight years old when the degree is conferred, provided the student's committee and department determine that the student has kept current in the subjects concerned. Graduation must occur no later than five years after the date on which the candidate passed his or her preliminary or general examination. These time limitations can be extended only on recommendation of the committee and approval by the Graduate Council.

**Awarding Doctoral Degrees to Members of the Faculty.** A University of Idaho faculty member with rank of senior instructor or above may not be awarded a doctoral degree earned through the department or corresponding unit in which he or she is employed, unless the faculty member had been advanced to candidacy for the degree before attaining such academic rank.

**Foreign Language Requirement for the Ph.D. Degree.** Whether there is a foreign language requirement and, if so, the number of languages required, the method of examination, and the level of competency, are departmental options. Refer to departmental descriptions in part 5 of this catalog.

**Particular Requirements for the Ed.D. Degree.** A period of professional practice is required for the Doctor of Education degree; the period involved is determined by the student's supervisory committee. The Ed.D. degree is awarded only through divisions in the College of Education; therefore, the student should consult the appropriate divisional office for additional requirements.

## Procedures for Doctoral Degrees

**Appointment of Major Professor and Committee.** A major professor (a member of the Graduate Faculty) is appointed as early as possible during the first two semesters of study. A supervisory committee consists *at least* of four people: the major professor as chair, a second faculty member from the major department, one faculty member from a minor or supporting area, and a faculty member from a discipline outside the major department's discipline(s). A departmental faculty member who has an adjunct appointment to another department cannot be considered an outside committee member for a student in the faculty member's primary department. The committee is approved by the vice president for research and graduate studies in accordance with nomination procedures of the department concerned. At least one-half of the members of the committee must be members of the Graduate Faculty. A faculty member may not serve on a committee for a student who is seeking a degree higher than the faculty member has attained. The committee assumes responsibility for directing the student's program under the leadership of the committee chair, who is also the research advisor.

**Qualifying Examination.** The qualifying examination, is a departmental option and serves to assess the background of the student in both the major and supporting fields and to provide partially the basis for preparation of the student's study program. A particular department may or may not require a master's degree as a prerequisite for the qualifying evaluation. As soon as departmental qualifications are met, a supervisory committee is appointed.

**Preparation of Study Plan.** Within two semesters (or two summer sessions for those attending summer sessions only) of registration in the doctoral program, the student, major professor, and committee prepare a study plan, on forms provided through the Graduate College, for approval by the student's supervisory committee, the departmental administrator, and the vice president for research and graduate studies. Changes later deemed desirable may be made on a Change of Study Plan form and approved by the committee.

**Preliminary Examination for Ph.D. Degree.** The preliminary examination should be scheduled only after the student has completed the majority of the courses on his or her study plan. The student's committee certifies to the Graduate College the results of the preliminary examination and if passed, the student is advanced to candidacy. Graduation must occur no later than five years after the date on which the candidate passed his or her examination. If the preliminary examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months or more than one year following the first attempt. If a student fails the preliminary examination a second time, or the department does not allow the student to repeat the examination after the first failure, or the student does not retake the examination within one year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program.

**General Examination for Ed.D. Degree.** When the student approaches the end of his or her course work, has completed the professional experience requirement, and has outlined the dissertation subject in detail, the supervisory committee approves the holding of the general examination. This is both a written and an oral examination and is intended to assess progress toward degree objectives. The student's committee certifies to the Graduate College the results of the general examination and if passed, the student is advanced to candidacy. Graduation must occur no later than five years after the date on which the candidate passed his or her examination. If the general examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months or more than one year following the first attempt. If a student fails the general examination a second time, or the department does

not allow the student to repeat the examination after the first failure, or the student does not retake the examination within one year, the student is automatically moved to unclassified status, and is no longer in the degree program.

**Application for Advanced Degree**. The Application for Advanced Degree, obtained through the Graduate College, is submitted to the College of Graduate Studies office prior to the last day of the previous semester in which graduation is intended. This application deadline is listed on the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration.

**Registration Requirements.** A graduate student defending and/or submitting a dissertation must be registered for dissertation credit. See also "Registration and Enrollment Requirements" under general regulations. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

**Final Defense.** Before the defense, the Authorization to Proceed with Final Defense form, a page from the "Graduate Handbook for Thesis and Dissertations," is submitted to the College of Graduate Studies. The final defense for a doctoral degree normally is not taken earlier than five months after passing the preliminary or general examination. However, the actual time for the final defense is set by the student's committee. It is held upon completion of the dissertation and after authorization forms have been issued by the Graduate College, but not earlier than ten working days after approval by the Graduate College to schedule the defense. A recommendation of a majority of the committee is necessary for a candidate to pass this defense. The defense, if failed, may be repeated once. The interval before the second attempt may not be less than three months or longer than one year. If a student fails the final defense a second time, or the department does not allow the student to repeat the defense after the first failure, or the student does not retake the defense within one year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program. Following a successful defense of his or her dissertation, the candidate must submit the final copies within six months; otherwise, the candidate must defend the dissertation again and may be required to revise it or write an entirely new one.

**Dissertation.** Two reproduced copies of approved quality and two additional copies of the title page and abstract (not to exceed 350 words) must be deposited in the Graduate College by the date specified in the *Time Schedule*. Doctoral candidates pay a fee for the publication of the abstract in Dissertation Abstracts and for microfilming the dissertation by University Microfilms.

A "Graduate Handbook for Theses and Dissertations," which describes requirements and make suggestions for the preparation of dissertations, should be obtained through the Graduate College. Students must conform to current rules and regulations when preparing dissertations.

## Assistantships and Research Fellowships

**Assistantships** are open to domestic and international students who hold a baccalaureate degree from any university or college of recognized standing and who are regularly enrolled students in the College of Graduate Studies.

Students in the provisional enrollment category or in the unclassified enrollment category are NOT eligible to receive assistantships.

An inquiry for a position or award should be addressed to the administrator of the department in which the applicant plans to enroll for graduate study. Appointments include a work requirement of up to 20 clock hours a week. Graduate assistants are considered students and do not pay social security if registered for 9 or more credits. Graduate assistants who conduct classroom and/or laboratory instruction under the supervision of a full-time member of the faculty are teaching assistants. Graduate assistants who provide research service, grade papers, and perform other non-teaching duties are research assistants. Those appointed to assistantships supported by the university are advised that the appointments are tenable only in

the unit of the major field of study, except where prior written exceptions are made. Annual leave, sick leave, and health insurance benefits are not available for graduate assistants.

Full-time appointees (i.e., with a work requirement of up to 20 clock hours a week) may enroll for a maximum study load of 12 credits each semester (exclusive of audited courses; zero credit courses are calculated using the actual credits associated with the course), except that the administrator of the department in which the student holds the assistantship may approve an adjustment to total 24 credits during two successive academic-year semesters. Salaries for assistantships vary depending upon the department, length of graduate service, and whether they are for an academic year or for 12 months. Assistantships at the University of Idaho are competitive with those at like institutions and current salary levels will be provided by the college or department upon inquiry.

In addition, nonresident tuition will be waived for persons holding full appointments, and a pro rata portion of nonresident tuition will be waived for persons holding partial appointments. However, **each person who holds a full appointment as a graduate assistant is required to pay graduate tuition and the uniform student fee charged to registered full-time students, regardless of the number of credits for which the student is registered.** Persons accepting part-time graduate student appointments will be required to pay graduate tuition and student fees based on the number of credit hours for which the person is registered.

A full-time graduate assistant cannot use a staff or staff spouse fee waiver.

**Research fellowships** are awarded by various colleges. Research conducted on fellowships may or may not be used for dissertation purposes. Credit enrollment and stipends vary according to the particular fellowship. Fees and tuition are charged, but in some cases may be remitted, depending on the type of fellowship and the availability of funds. Inquiries should be addressed to the administrator of the department in which the applicant plans to enroll.

# College of Law

**John A. Miller, Dean; D. Benjamin Beard, Associate Dean (101 Law Bldg.; 208/885-4977).**

The College of Law was organized in 1909 and is the only school devoted to the study of law in the state of Idaho. The college is a member of the Association of American Law Schools and is approved by the Council of the Section of Legal Education and Admissions to the Bar of the American Bar Association.

## Purpose of the College

The role of the College of Law is to educate students for the legal profession with its many facets and its involvement in the whole range of society. The curriculum is designed to provide instruction over three academic years in principles generally applicable in the United States. The responsibilities assumed by the professional man or woman are emphasized, as are solutions to ethical problems. The study of law is also an asset to those who wish to hold positions of leadership in government or business.

Methods of instruction are adapted to the development of each student's highest potential and vary with the professor and the course. Basic instruction is accomplished primarily by way of the case method, a study of the actual decisions of appellate courts, supplemented by selected readings that provide insight into the nature of judicial and legislative processes. Problem and simulation methods are used in advanced courses. Techniques that encourage individual initiative and develop perception and communication abilities are emphasized. In the third year, clinical training provides contact with clients. Because law changes rapidly, mere accumulation of information is subordinated to the more important ends of individual development and training in critical habits of thought.

## Admission to the Bar

The College of Law is fully accredited by the American Bar Association and the Association of American Law Schools, and its degree is accepted by all state bar associations. Educational prerequisites vary among states, and the secretary of the bar examiners in the state in which the applicant intends to practice should be contacted to determine the existence of special requirements.

## Suggestions for Pre-legal Study

The subject matter of pre-legal education is less important than the quality of work performed. Although the most common pre-law majors are English, social sciences, or business, law students are drawn from a broad range of undergraduate programs from agriculture and engineering to English and philosophy. The study of law requires logical analysis and effective written and oral communication. Any rigorous course of study that develops these skills is good preparation for law school. Beyond this, a well-rounded education is best. American government and western political philosophy are important in public law; economic and accounting concepts are basic to much business and commercial law; history, literature, philosophy, and psychology all provide useful insights into cultural tradition and human motivation which are important to the interpretation and application of law.

Most universities have a pre-law advisor, often through the Political Science Department, to advise students in selecting appropriate pre-law courses. At UI, a pre-law advisor is available through the Political Science Department to guide students in selecting courses within the particular college or university that will meet these objectives. The dean's office at the College of Law is also available for general consultation in program planning.

## Application for Admission

Applicants for admission must have a bachelor's degree from an accredited four-year college or university by the date of enrollment at the College of Law. In special cases, it may be possible to be admitted after three years of undergraduate study (contact the College of Law for more information). Applicants must also arrange for a complete Law School Data Assembly Service (LSDAS) report, which consists of a Law School Admission Test (LSAT) score, copies of transcripts, and other relevant information.

Arrangements for taking the LSAT must be made by the individual applicant directly with the Law School Admission Council (LSAC) well in advance of the dates set for the LSAT. The dates and places for the test, application blanks, and a bulletin of information about the test may be obtained by writing directly to LSDAS, Box 2000-R, Newtown, PA 18940-0998, by calling LSAC at 215/968-1001, or on their web site at http://www.lsac.org/. This information may also be obtained from the pre-law advisor of most colleges and universities.

Commercial materials on the LSAT are available at most bookstores and LSAT preparation courses may be found in many locations. Applicants are advised to study for the test ahead of time. Old LSAT scores are acceptable as long as an LSDAS Report can be assembled by the testing service. If the student is in the area, the University of Idaho Enrichment Program offers LSAT preparatory classes and can be reached at 208/885-6486 for scheduling information.

Registration with the LSDAS is required of all applicants. Instructions concerning registration for the LSDAS report and an application blank for the purpose are contained in the same bulletin that describes the LSAT. Applicants should accomplish this registration at the same time they register for the LSAT. **It is the applicant's responsibility to assure that LSDAS has all required information and that the applicant's LSDAS Report is complete for release to the College of Law.** Be advised that it may take up to six weeks for an LSDAS Report to reach the College of Law.

*While the College of Law considers applications upon completion, all required admission credentials listed below should be received no later than **February 1** to be assured timely consideration for admission in the fall.* The College of Law will request an LSDAS Report from LSAC on receipt of an application and application fee. The college is unable to consider the application until an LSDAS Report has been received. This requires applicants to take the LSAT no later than the preceding December. However, in order to assure timely application, the October LSAT, almost a year before admission, is recommended. If the college receives any of the required information later than February 1, the application will be considered late. The college cannot be responsible for delays in the mail or at the LSDAS.

## Decision on Admission

Admissions decisions are made by a three-member faculty committee chaired by the associate dean. The college receives many more applications than it can accept. Consequently, the Admissions Committee must deny admission to many who are otherwise qualified to study law. In general, offers of admission are extended to those judged to present the greatest promise for success in law school. Matters relating to character are also considered in the admissions process.

Although UGPA and LSAT scores are the most important factors used to arrive at this judgment, the committee will consider any additional information that an applicant believes is important in assessing his or her ability to perform law school work. A personal statement often provides insight into an applicant's motivation for attending law school, as well as functioning as a sample of writing ability, and is probably the most helpful additional item for most applicants. Graduate work and/or work experience may provide evidence of achievement and capabilities inadequately addressed by standard credentials. Letters of recommendation and prior written work may also be of assistance in assessing an applicant's relative promise. Letters of recommendation should be limited to three, and should address the applicant's ability to engage in critical analysis and to communicate orally and/or in writing. An applicant's cultural background may also be judged relevant, either because it suggests that an applicant will supply diversity to the student body or because it bears on the evaluation of standard credentials.

As a state-supported institution, the College of Law extends a preference to timely applicants who are Idaho residents. It is possible to establish Idaho residency while a student. Residency determinations are made by the Undergraduate Admissions office and inquiries about residency should be directed to that office at 208/885-6326.

In recent years the median UGPA for residents has been approximately 3.22 and the median LSAT has been approximately 152. The median figures for nonresidents are 3.30 GPA and 85th percentile LSAT.

Ordinarily, timely applicants will be notified of a decision no later than April 1. For most, this decision will be either positive or negative. However, some will be placed on a "waiting list" and will be admitted thereafter if we have a sufficient number of withdrawals by previously admitted applicants. Those on the waiting list may not receive final word about admission until mid-summer. The dean's office will consult with wait-listed applicants on request and attempt to provide as much information about their status as possible.

Upon acceptance, a $200 deposit is required to secure a place in the fall entering class. This deposit will be applied to student fees upon registration. It is fully refundable until June 1. In cases of special need, the deposit may be waived.

## Transfers from Other Schools

Space is limited, and only a few transfers into the second year class can be accommodated. Special standards apply, and within these standards, a degree of preference is extended to residents of Idaho. Students transferring into our program are expected to complete at least three semesters at Idaho. Students desiring to study here for a lesser period should arrange to have credits at Idaho accepted toward a degree from the law college in which they are currently enrolled. Before a transfer applicant is considered, we must have on file a final transcript of all work that will have been undertaken at other law schools by the time of transfer. We also require a letter from the dean or associate dean following the completion of all such work that states that the applicant remains in good standing, is eligible to continue without any condition or qualification, and ranks in the top 50 percent of his or her law school class. Consequently, for an applicant currently enrolled in a law school, no decision on transfer will be possible until June or later, when all grades from current work are in. If an applicant attends a summer session of a school of law, it will not be possible to process a final acceptance until the close of the summer session. If an applicant needs some guidance before results of his or her spring semester's work become available, a tentative opinion about probable admissibility may be given.

## Nondegree Candidates

Students who are not degree candidates in the College of Law but are enrolled elsewhere at the UI are permitted to register for a course offered by the College of Law if the permission of the dean or associate dean of the College of Law and the instructor of the course are both granted. Such courses cannot be credited toward a law degree even if the student is later admitted to the College of Law.

## Fees

See the section on "Fees and Expenses" in Part 2.

## Grading System

Grades for courses taken in the College of Law shall be awarded on the basis of A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and F; provided, however, that by resolution the law faculty may designate any course, or courses, to be graded on a pass-fail basis. Any approved course work taken at any other law school will be recorded on the transcript as a "P," if the student earned a "C" or better in that course. No credit will be awarded for work done at another law school if the student earned less than a grade of "C." Up to 6 credit

hours of UI graduate level courses may be taken with special permission of the associate dean. Credits will be recorded as “P” for course work in which the student earns a “B” or better. Grades of "P" are not included in calculating a student's grade-point average or class ranking in the College of Law. Exceptions to the above may be made for UI graduate level courses used in the approved UI law/graduate concurrent degree programs.

Grade-point averages of students in the College of Law shall be computed by assigning the following numerical point values per semester hours: A = 4.00; A- = 3.67; B+ = 3.33; B = 3.00; B- = 2.67; C+ = 2.33; C = 2.00; C- = 1.67; D+ = 1.33; D = 1.00; D- = 0.67; F (or "fail" under the pass-fail basis) = 0.00. The cumulative grade-point average is the quotient of total points assigned, divided by total hours undertaken. Courses in which marks of I, W, or P (pass) have been given shall be disregarded in the computation. Courses may be repeated only with the approval of a majority of a quorum of the faculty. All course grades shall be included on the transcript and (except for marks of I, W, or P) in the calculation of the grade-point average, even if courses have been repeated.

This grading system applies in determining: (a) eligibility for continuing study in the College of Law; (b) compliance with requirements for the Juris Doctor degree; and (c) class ranking within the College of Law.

Grades in most courses offered by the College of Law are awarded on the basis of performance in a single written examination conducted at the end of the semester. In courses where it is so announced, grades on written projects or classroom participation may be included.

Unless arranged in advance by the professor, students receiving an "incomplete" grade for a course must remove that grade within six weeks after the first day of classes of the following fall or spring semester. Incompletes not made up before that date automatically revert to the grade indicated by the professor as the "permanent" grade, usually an "F." The grade ultimately given will be computed in the GPA for the semester in which the class was begun.

## Concurrent J.D./M.S. and J.D./M.B.A. Degrees

Graduate-level courses used toward an approved concurrent law degree must be approved by the College of Law. Grades and credits earned in these approved graduate courses will not be calculated in the student’s institutional College of Law GPA or College of Law class ranking.

For information on the concurrent J.D./M.S. degrees, see the Accounting and Environmental Science sections in Part 5. UI graduate-level courses will be recorded on the law student’s academic record as a comment only.

A concurrent J.D./M.B.A. is available in cooperation with the College of Business and Economics at Washington State University. WSU graduate-level courses will be recorded on the law student’s academic record as transfer work. For more information, contact mba@wsu.edu (phone 509/335-7617) and lawadmit@uidaho.edu (phone 208/885-6423).

## Additional Information

For more detailed information about the College of Law, see the College of Law Announcement.

# College of Letters and Science

**Kurt O. Olsson, Dean (112 Admin. Bldg.; 208/885-6426); Sandra L. Haarsager, Associate Dean; Kristine A. Roby, College Advisor, kroby@uidaho.edu.**

Established in 1900, the College of Letters and Science (L&S) is the oldest division of the university. The objectives of the college are to provide a liberal and professional education in the arts and sciences, to advance knowledge through research and scholarship, and to perform service to the university at large, the state, and the nation.

## Departments and Programs of Instruction

Included within L&S are the Departments of Biological Sciences, Chemistry, English, Foreign Languages and Literatures, History, Mathematics, Philosophy, Physics, Political Science and Public Affairs Research, Psychology, Sociology/Anthropology/Justice Studies, and Theatre Arts. The School of Communication, the Lionel Hampton School of Music, and the Division of Statistics also function as departments of the college. Cooperating departments from other divisions include the Departments of Art; Economics; Geography; Microbiology, Molecular Biology and Biochemistry; and Naval Science. Other programs offering degrees through the College of L&S include American Studies, Environmental Science, General Studies, Interdisciplinary Studies, International Studies, and Latin American Studies. The departments and schools in L&S provide nearly 100 curricula and curricular options leading to baccalaureate degrees, as well as graduate study leading to master's and doctoral degrees.

**Undergraduate.** See departmental sections in Part 5.

**Graduate.** The College of Graduate Studies offers work toward advanced degrees in many disciplines of the College of L&S. Currently work leading to a master's degree is available in the fields of anthropology, biological sciences, botany, chemistry, English, environmental science, French, German, history, mathematics, music, physics, political science, psychology, Spanish, statistics, theatre arts, and zoology. The degree of Doctor of Philosophy is available in botany, chemistry, history, mathematics, physics, political science, and zoology. For the specific degrees available, see the list of programs offered in part 1.

**Nondegree.** A nondegree program is offered in which each student's course of study is worked out to meet his or her special needs. The program is intended primarily for students who (1) do not plan to obtain degrees at the University of Idaho, (2) plan to transfer to other institutions, or (3) have objectives that are not provided for by any of the established curricula in the college.

**Interdisciplinary Studies.** Students who have broad educational goals that necessitate work in several disciplines or departments may present an interdisciplinary curriculum for the B.A. or B.S. degree. For details, see the program in interdisciplinary studies in Part 5.

**Preparatory Programs in Medicine and Dentistry.** Premedical and predental programs are administered by the L&S Health Studies Committee.

## Admission to the College

Students who expect to enter L&S should plan their high school electives carefully, both to lay the foundation for their general education, which will be continued in the university, and to ensure that they are adequately prepared to begin their study at the college level. Students should select subjects in English, foreign language, social sciences, natural sciences, mathematics, and fine arts that will provide a well-rounded preparation for further study. For a statement of general undergraduate and graduate admission requirements, see Part 2. Graduates of four-year, accredited high schools ordinarily are eligible for admission to L&S.

## Regular Enrollment in a Program of Studies

Students in L&S must enroll in regular programs unless they are attending on a part-time basis (seven-credit maximum), or they are admitted to nondegree programs. Except for the two-year program in prenursing studies, a regular program is one that leads to a degree that the college offers. However, it is not necessary to select a major curriculum until the beginning of the junior year. This permits the undecided student to take courses in a wide range of fields in order to choose a major more wisely.

## Teacher Education Program

Students in L&S who are preparing for secondary-school teaching should consult the section on the College of Education in this Part 4.

## Laboratory of Anthropology

The Alfred W. Bowers Laboratory of Anthropology, established in 1968, serves as the research arm of the College of Letters and Science for investigations in archaeology, ethnohistory, linguistics, and physical anthropology. The laboratory serves as the main clearinghouse and repository for all northern Idaho archaeological collections and records.

Modern and well equipped facilities for the cleaning, preservation, and analysis of both historic and prehistoric artifacts are contained in the laboratory. The metal artifact cleaning facilities are among the largest and best equipped in the country. The laboratory also provides space and facilities for research associates, graduate student research, teaching and comparative collections, and a regionally oriented library.

## General Requirements for Graduation

Each student working toward a baccalaureate degree from the college must satisfactorily complete 128 semester credits (unless a higher number is specified in the particular curriculum), including at least 36 credits in courses numbered 300 and above, the Core requirements (see regulation J-3 in Part 3), and the college and departmental requirements for the degree sought. The college requirements applicable to the B.A. and B.S. degrees are listed in Part 5. The requirements for the various professional degrees (i.e., B.F.A., B.Mus., and B.N.S.) are listed by academic unit in Part 5. The college B.A. and B.S. requirements do not apply to these professional degrees.

## College Requirements for the B.A. and B.S. Degrees

**Objectives.** The college requirements for the B.A. and B.S. degrees are designed to ensure a broad, liberal education through the attainment of the following objectives: (1) proficiency in written and spoken English; (2) appreciation of great literature, music, and art; (3) knowledge of human development, the growth of social and economic institutions, and an understanding of the rights and responsibilities of the individual citizen; (4) perspective of American culture in the world at large; (5) sense of historical perspective; (6) acquaintance with moral, ethical, and aesthetic values; (7) familiarity with scientific thought and method; (8) ability to use and interpret basic mathematical concepts; (9) understanding of ecology; and (10) a continuing attitude of intellectual curiosity.

### Requirements for the B.A. Degree

*Humanities*--6 credits (two courses) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

*Social Sciences*--3 credits (one course) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

*Foreign Language*--0-16 credits (zero-four courses), i.e., competence in one foreign language equivalent to that gained by the completion of four semesters of college courses (through the intermediate level). This requirement may be satisfied by the completion of either of the following options: (1) 16 credits or four high-school units in one foreign language, or (2) 12 credits in one foreign language, and one three-credit course in literature translated from the same language. The 12 credits may be satisfied by three high-school units in one foreign language.

**Requirements for the B.S. Degree.**

*Humanities*--3 credits (one course) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

*Social Sciences*--3 credits (one course) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

*Natural Sciences, Mathematics, and Statistics*--6 credits (two courses) in addition to the minimum university-wide core requirement of 11 credits in natural sciences/math.

For the B.S. degree, the student may substitute the successful completion of an academic minor or area of emphasis of at least 18 credits approved by the department in which the student is majoring.

Courses satisfying the *humanities* requirement are those dealing with the arts, literature, and philosophy. Courses satisfying the *social sciences* requirement are those dealing with a person's social condition including social relations, institutions, history, and participation in an organized community. *Mathematics and statistics* requirements can be met by taking courses in the Department of Mathematics and the Division of Statistics. Likewise, the *natural science* requirements can be met by taking courses in the life sciences and the physical sciences.

Special topic, workshop, seminar, and directed study courses are generally not applicable. However, individual departments can, at their discretion, certify one of these nonregular courses as meeting Letters and Science B.A. or B.S. requirements in an appropriate category.

**Progress in Satisfying These Requirements.** Students who wish to graduate by the end of four years of college work should take a program that results in substantial progress toward the fulfillment of the preceding requirements by the end of the sophomore year. In particular, students seeking the B.A. degree should take courses in fulfillment of the foreign-language requirement as early as possible. If they cannot do this during the first semester, they should immediately take a course that can be used in partial fulfillment of the science-mathematics requirement.

## Major Curricula

**Selection of a Major.** Each student should select a major curriculum no later than the beginning of the junior year. Lower-division students who have not decided on a major may remain in a "general" classification, which permits them to explore a variety of possible major fields of study.

**Major Requirements.** The departmental requirements are stated under the respective curricula in Part 5.

# College of Mines and Earth Resources

**Earl H. Bennett, Dean (321 Mines Bldg.; 208/885-6195); Cheryl Tribble, Secretary of the College Faculty.**

The School of Mines was established at the University of Idaho in 1917 to serve the needs of the Gem State's important mining industry. The name was changed in 1952 to the College of Mines, and "Earth Resources" was added in 1978 to reflect the growing academic diversity represented in today's Departments of Geography, Geological Sciences, and Materials, Metallurgical, Mining, and Geological Engineering. A separate state agency, the Idaho Geological Survey, is an affiliated program.

Degrees offered within the college include geography (B.S., M.S., Ph.D.); cartography (B.S.); mining engineering (B.S., M.S., Ph.D.); metallurgical engineering (B.S., M.S., Ph.D.), geological engineering (B.S., M.S.); geology (B.S., M.S., Ph.D.); hydrology (M.S.); and materials science and engineering (M.S., Ph.D.). In addition, the College of Graduate Studies offers a Master of Arts in Teaching degree (with majors in geography and earth science) and a Master of Natural Science degree (major in earth science). The college is home to some 35 faculty who instruct and guide about 385 graduate and undergraduate students in these disciplines.

## Facilities and Equipment

The college is housed in the Mines Building (built in 1960) and the state-of-the-art McClure Hall (dedicated in 1995). Both buildings contain teaching and research laboratories, classrooms, and faculty and administrative offices. Highlights in McClure include a fully equipped analytical lab with the latest equipment and a new computer teaching lab (27 PCs) and adjacent student lab (38 PCs) completed in 1998. Other fully equipped computer facilities for teaching and research in geographical information systems (GIS) and remote sensing are also housed in this building.

**Materials Engineering.** Students are offered hands-on opportunities to study both metallic and ceramic materials. Laboratories and apparatus are available to fabricate these materials, and to observe microstructures using standard metallographic techniques. Both hot and cold isostatic presses are available for consolidation, as well as annealing furnaces for densification.

The chemistry of these materials can be determined using an energy dispersive X-ray fluorescence unit, and their structures can be calculated using powder X-ray diffraction and single-crystal techniques. The internal structural details of these materials (at close to atomic scale) can be examined using a transmission electron microscope. Equipment is also available for mechanical testing, electrochemical corrosion studies, and studying electrical, magnetic, and structural properties.

**Metallurgical Engineering.** Equipment is available for a broad range of laboratory procedures commonly used to study extractive and physical metallurgy. Students can do bench-scale tests to crush, grind, screen, and separate minerals from ores using flotation, magnetic separation, leaching, or other techniques. Analytical equipment ranging from traditional fire assaying to induction-coupled-plasma (ICP) atomic absorption spectrometry and ion chromatography are available.

**Mining Engineering.** The mechanical properties of rocks are critical to mining engineers for designing surface and underground mines as safe working environments. The college's rock mechanics laboratory is equipped with a large capacity tension/compression testing machine and associated strain measuring and recording equipment.

Of equal importance to rock mechanics is basic mine design. Computer laboratories using high speed work stations and "expert" software systems provide our mining engineers with powerful tools. These systems permit the engineer to design the most safe, economical, and operationally efficient plans for mine entry, ore removal, ventilation, and transportation.

**Geological Engineering.** The geological engineering program provides students with a thorough educational experience in applied geology, the engineering sciences, and in the integration of geologic concepts into engineering evaluation and design. The student can specialize in geological engineering as applied to mineral exploration, hydrology, or energy resources. Sophisticated equipment for strain testing and determining other engineering properties is available in the college's rock mechanics laboratory.

**Geological Sciences.** Extensive laboratories are maintained for work in all of the basic earth science courses, with large study collections of fossils, rocks, minerals, crystal models, ore suites, thin sections, polished sections, and topographic and geologic maps.

Equipment used in advanced courses includes rock sawing and polishing facilities, binocular microscopes, reflection and polarizing microscopes, photomicrographic apparatus, x-ray diffraction and fluorescent equipment, and an atomic absorption spectrophotometer. Both scanning and transmission electron microscopes are available to advanced students. Other equipment includes computers, proton magnetometers, resistivity survey equipment, a 12-channel seismograph, a gravity meter, an EDM survey unit, soil drilling and sample kits, water-level recorders, and other geophysical and hydrological equipment.

Research laboratories are equipped for work in applied geochemistry, economic geology, paleontology, photogeologic analysis, remote sensing, and hydrology. Facilities for research in hydrology are also available in other divisions of the university.

Through the Glaciological and Arctic Sciences Institute, cooperative facilities for field training and research in British Columbia and Alaska are available in the disciplines of mining and exploration geology, geophysics, terrestrial photogrammetry, field surveys and mappings, geomorphology, and glaciology.

**Geography.** The department's main laboratories are the surrounding regions, including the Palouse, the Inland Empire, and the Pacific Northwest. Three separate laboratories are maintained in the department for teaching and research in cartography, geographic information systems (GIS), and remote sensing. The GIS laboratory has ARC-INFO running on both HP work stations and IBM-compatible PCs. ERDAS, a digital image analysis package, is available on 10 PCs in the remote sensing laboratory. Additional PC-based and mainframe computing are provided through the university's Computer Services facilities. Another resource is the approximately 124,000 maps, numerous atlases, 40,000 aerial photographs, and a growing collection of digital data files in the University Library's collection.

Cart-O-Graphics, the Department of Geography's graphics laboratory, offers design, drafting, and reproduction services for maps and other graphics to illustrate research reports and other publications while providing work experience for students. Although this laboratory primarily serves the university's needs, it also serves other agencies in the state and region.

## Scholarship and Loan Funds

Students interested in scholarships, and who have been admitted to UI with a declared major in one of the College of Mines and Earth Resources' programs, should refer to the "Financial Aid" section in part 2 of this catalog. Individual scholarships are awarded each year totalling approximately half a million dollars. Details on specific requirements to apply for one of these awards can be obtained by writing to: Dean, College of Mines and Earth Resources, PO Box 443025, University of Idaho, Moscow, ID 83844-3025 or e-mail mines@uidaho.edu.

## Idaho Geological Survey

**Earl H. Bennett, Director (321 Mines Bldg.; 208/885-6195).**

Established in 1919, the Idaho Geological Survey is the lead state agency for collecting, interpreting, and disseminating all scientific information on the geology and mineral resources of Idaho. In addition to its main office at the University of Idaho's Moscow campus, the Survey has branch offices in Boise at Boise State University and in Pocatello at Idaho State University. A staff of geologists conducts applied research

with a strong emphasis on producing geologic maps and providing technical and general information to the public.

Cooperative projects between the survey, state universities, and other academic, state, and federal institutions, including the U.S. Geological Survey, enhance research productivity and educational research. At the Moscow office, the Survey provides a sales service for publications and maps and maintains reference collections of statewide research. The Survey directs its activities at the broad interests of the state's citizens, teachers and students of earth science, the mineral industry, land developers, land-use planners, scientific researchers, and city, county, state, and federal agencies.

## Glaciological and Arctic Sciences Institute

**Maynard M. Miller, Director (318 Mines Bldg.; 208/885-6382).**

The institute was established at the university in 1975 by the Board of Regents to promote a learning and research experience for undergraduate and graduate students, as well as cooperative field research with senior scientists in the arctic and mountain geosciences and allied environmental field sciences. Both formal and directed study field courses are given on the Juneau Icefield on the Alaska-B.C.-Yukon border, operating out of a series of field stations provided by the Foundation for Glacier and Environmental Research at the Pacific Science Center, Seattle, Washington. Areas of interest are field and exploration geology, exploration geophysics, glaciology, Pleistocene stratigraphy, glacial and periglacial geomorphology, arctic geobotany, remote sensing, and allied areas of atmospheric sciences and survey and mapping. The summer field session runs for eight consecutive weeks during July and August. Upwards of 50 students participate, including undergraduate and graduate students, and a select number of high ability high school junior and senior advance placements.

## General Requirements and Undergraduate Curricula

**University Requirements.** See regulation J in Part 3 for the all-university requirements for graduation.

**Electives.** A list of acceptable electives may be consulted in the office of each head of department and advisor in the college. Electives must be approved by the head of department or the advisor involved.

**Major Curricula.** As specified in Part 5, the programs of study in this college require 128 to 136 credits. The curricula include the departmental and general requirements as set forth above.

# College of Natural Resources

**Leonard R. Johnson, Interim Dean (202 College of Natural Resources Bldg.; 208/885-2397; Alton G. Campbell, Associate Dean.**

Professional education leading to a degree in forestry began at the University of Idaho in 1909. To the initial curriculum in forest resources have been added those in forest products (1914), rangeland ecology and management (formerly range resources) (1917), wildlife resources (1942), fishery resources (1951), and resource recreation and tourism (formerly wildland recreation management) (1974).

The academic objective of the college is to provide its students with opportunities to become better prepared for lives of responsibility and fulfillment and to acquire competence for entry into professional careers in natural resource science and management. Each of the curricula offered by the college acquaints the student with the physical, biological, and social sciences and with the humanities, thus establishing a basis of general education and preparing the student for the scientific-professional courses addressing the use of forest and range lands and related resources. In addition to the most modern technical and academic classroom instruction, the college prides itself in "hands-on" training taking advantage of its outstanding field facilities and its emphasis on communications and student activities to enhance leadership potential.

## Advantages of Location

The university is ideally located for preparing students for the renewable natural resources professions. Forest and range lands comprise 90 percent of the state's area. Forested areas include many types from the ponderosa pine in southern Idaho to the mixed coniferous and famous white pine of northern Idaho. Range lands vary from spring-fall and winter ranges in the sagebrush-grass and bunchgrass zones to summer ranges in several of the forested zones. Within the forest and range lands are hundreds of lakes and streams and extensive wilderness areas that provide habitat for fish and wildlife and opportunities for wildland recreation.

The values derived from these resources include wood products of all types; cattle and sheep in great numbers; abundant wildlife of many species; world renowned game fish; water for domestic use, power, and irrigation; and recreational activities. These natural study areas and resources are available to the student in preparing for his or her profession.

## Facilities

A modern three-story, 90,000-square-foot building, the Natural Resources Building incorporates classrooms, laboratories, scientific equipment, plant and animal collections, computer access, and other support functions into an ideal environment for natural resources education and research.

A university experimental forest includes 7,200 acres of forest land located about 25 miles from the campus and is managed by the college as a working forest for demonstration, research, and education. The forest properties include a 200-acre recreation area, a 33-acre privately owned nature preserve, and two smaller tracts closer to Moscow that serve as outdoor classrooms. The Frank Pitkin Forest Nursery site includes 40 acres and three greenhouses that produce 700,000 seedlings annually for student training and research purposes. On the university campus, the Shattuck Arboretum, with over 60 species of trees, provides an outdoor classroom for studies in dendrology. Other field facilities include the McCall Field Campus located on Payette Lake in the mountains of west-central Idaho, the Clark Fork Field Campus in northern Idaho, the Taylor Ranch Wilderness Field Station in the heart of the Frank Church River-of-No-Return Wilderness, and the Lee A. Sharp Range Experimental Area in southern Idaho. In addition, Idaho's 37 million acres of public forest and range lands constitute a vast natural laboratory for students in all of the college's curricula.

To take advantage of these facilities and implement "hands-on" training, the college employs student logging, surveying, planting, and controlled burning crews.

## Standing of the College

To assure high professional standards several curricula in the college are periodically evaluated and rated as accredited or not accredited. Forest resources curricula at UI have been accredited since the Society of American Foresters first began accreditation in 1935. Similarly, in 1985 the rangeland ecology and management curriculum became one of the first in the nation to be accredited by the Society for Range Management. The curriculum of the Department of Resource Recreation and Tourism is accredited by the National Recreation and Parks Association. The curriculum in forest products is accredited by the Society of American Foresters and the Society of Wood Science and Technology.

## Departments

The college has five departments: Fish and Wildlife Resources, Forest Products, Forest Resources, Rangeland Ecology and Management, and Resource Recreation and Tourism. Although these departments are separate administrative entities, they share a common philosophy: integrated resource management. Many of the faculty members hold joint appointments in more than one department; student programs include courses in more than one department; and the teaching, research, and service missions of all the departments are integrated and coordinated at the college level. This integration is enhanced by the Forest, Wildlife and Range Experiment Station, described below.

## Degrees

Curricula leading to the following degrees are offered by the college: Bachelor of Science in Fishery Resources (B.S.Fish.Res.) with emphases in management and aquaculture; Bachelor of Science in Forest Products (B.S.For.Prod.) with options in forest products business management, timber harvesting, pulp and paper technology, and wood construction and design; Bachelor of Science in Forest Resources (B.S.For.Res.) with options in forest ecosystem management, administration, and science; Bachelor of Science in Natural Resources Ecology and Conservation Biology (B.S.Nat.Res.Ecol.-Cons.Biol.) with options in natural resources ecology and conservation biology; Bachelor of Science in Rangeland Ecology and Management (B.S.Rangeland Ecol.-Mgt.) with options in rangeland ecology, environmental assessment, and rangeland management; Bachelor of Science in Range Livestock Management (B.S.R.L.M.) in cooperation with the College of Agriculture; Bachelor of Science in Resource Recreation and Tourism (B.S.Res.Rc.); and Bachelor of Science in Wildlife Resources (B.S.Wildl.Res.); Master of Science (thesis and nonthesis options); Master of Natural Resources; and Doctor of Philosophy in natural resources, with dissertation topics in any of the five departments. Academic minors offered include forest products, forest resources, natural resource communication, outdoor recreation leadership, rangeland ecology and management, tourism and leisure enterprises, and wilderness and nature conservation.

## Admission Requirements

**General.** For a statement of undergraduate and graduate admission requirements, see Part 2.

**Transfer Students.** Students who propose to complete a portion of their undergraduate studies at a junior college, or elsewhere, before entering UI, should follow as closely as possible one of the curricula for the first two years set forth in Part 5. A student whose program does not closely approximate one of these will not be able to graduate in four years. Total time to graduation will also be extended if wildland field ecology is not completed by the end of the sophomore year. Transfer to UI before the end of the sophomore year is usually to the student's advantage. Correspondence with the dean of the college should be initiated at least three months before the date on which the student plans to enroll.

## Undergraduate Program

The undergraduate curricula are designed to provide both a general and a professional education. The objective in the first two years is to provide students with a good foundation in the biological, physical, and social sciences and in writing and speaking skills. The basic philosophy of the college is to educate according to the principles of integrated natural resource management while providing specialization in the student's major area of interest. Because of the emphasis placed on the integrated approach, all curricula in the college, except two options in forest products, have incorporated a common 11-credit set of core courses as follows: Natural Resources Ecology, Society and Natural Resources, Wildland Field Ecology, and Interdisciplinary Natural Resources Planning.

The curricula and options in each department offer as many courses in common with those in other departments as possible, while ensuring that specific professional education requirements are met. Flexibility and individuality in each student's program are provided by curriculum choice, by options within curricula, and by elective credits. Provision is also made for advanced training leading to a military commission.

A variety of scholarships are available to undergraduate students based on need and merit.

## Graduate Program

Programs leading to advanced degrees are offered in each of the fields represented by the undergraduate curricula of the college and in natural resources. Both the master's and the doctor's degree, with emphasis on conducting a research project and preparing a thesis or dissertation, are available. A nonthesis master's degree may also be obtained in each department.

An interdisciplinary Master of Natural Resources degree focused on management and administration is also available.

Excellent facilities and opportunities are available for graduate study and research in the subject-matter areas. Research in the college is organized through the Idaho Forest, Wildlife and Range Experiment Station. Research is also supported by the Idaho Cooperative Fish and Wildlife Research Unit, the Cooperative Park Studies Unit, the Wilderness Research Center, and by various state, federal, and private organizations.

Assistantships and fellowships are available to assist highly qualified students in their graduate programs.

More complete information on graduate studies may be obtained by writing the dean of the College of Graduate Studies. Specific information on specializations available and projects under way may be obtained by writing the College of Natural Resources.

## Requirements for Graduation

**University Requirements.** See regulation J in Part 3 for general university requirements for degrees.

**College Requirements.** Credits for the baccalaureate degree vary from 128 to 132 semester hours, depending on the option selected. A minimum cumulative grade-point average of 2.00 in all courses taken in this college is required for graduation. Courses in the college numbered above 299 are not open to any undergraduate student who is on academic probation.

The college may permit substitutions or grant waivers of specified requirements. Thus, for a student with special aptitudes or interests, a program can be devised that will provide a foundation for advanced study or research or meet other acceptable and well-defined career objectives.

**Summer Field Course, Internship, and Employment Requirements.** Students in all curricula except the pulp and paper and wood construction and design options of forest products, are required to complete the 2-

credit Wildland Field Ecology II course during the two-week period immediately following the close of spring semester in mid-May. They should finish this requirement before beginning the professional course work of their upper-division programs. Students in some curricula have an internship or summer work experience requirement. Specific information is contained in the respective departmental sections of this catalog.

## Idaho Forest, Wildlife and Range Experiment Station

All members of the college faculty are on the staff of the experiment station. Other members of the station staff include full-time research associates and technicians, as well as graduate-student appointees.

The program of the experiment station is closely connected with the graduate training program of the college. Many of the graduate students enrolled in the college are on assistantships associated with station projects.

The station staff conducts research on a wide variety of renewable natural resource management problems in the areas of forestry, forest products, range, resource-based recreation, resource-based tourism, wildlife, and fisheries. Several projects are interdisciplinary. Funds for the station are provided by the university, by some departments of the state of Idaho, and by grants from federal, other state, and private sources. Currently a majority of these funds comes from non-university sources. More information on station activities may be obtained by writing to the associate director, Idaho Forest, Wildlife and Range Experiment Station, College of Natural Resources.

# University Honors Program

**Stephan P. Flores, Director (315 Idaho Commons; phone 208/885-6147; http://www.uidaho.edu/honors_program); Anna Banks, Associate Director; Cheryl Wheaton, Program Advisor.**

Established in 1982, the University Honors Program (UHP) offers a stimulating course of study and the benefits of an enriched learning community for exceptional students from all colleges and majors. The program's diverse curriculum serves a variety of student needs and interests. Beyond the classroom, the program's extracurricular opportunities include concerts, plays, films, lectures, and other excursions that foster cultural enrichment, fellowship, and learning. The great majority of the 650 students currently active in the program are able to participate without adding to the total number of credits needed for graduation.

Honors faculty members support students in developing their initiative and their abilities to think critically and creatively. Most honors classes are small, and honors students thus benefit from close intellectual contact and discussion with their instructors and fellow students. The program director, associate director, and program advisor act as supplemental academic advisors to all students who qualify for honors study.

As part of a dynamic, broad-based education, members are also encouraged to participate in either domestic or international exchange programs. Honors advisors work with students individually to determine appropriate credit within the honors curriculum for academic work completed while on exchange.

Qualified students may take honors courses even if they decide not to work for a certificate. Honors courses are designated with an "HON" on the transcript to indicate that the course work is of a special nature. Students who receive the "Honors Core Award" and the "University Honors Program Certificate" shall also have these distinctions noted on their official transcripts.

**Admission Process.** Incoming freshmen are invited to apply to the UHP on the basis of their high school GPA and standardized test score(s). Criteria for admission is based on a correlation between the student's high school GPA and the ACT composite score or an SAT combined score. For example, students who have received a 28 ACT composite score or a 1250 SAT combined score, and a 3.7 high school GPA meet the initial minimum criteria. The correlation, however, is based on a sliding scale so that students with test scores higher than those noted above may have GPAs below 3.7 and still meet the minimum criteria; students with higher GPAs may have test scores lower than the examples offered above and still meet the minimum criteria. Those who do not meet the above criteria but who would like to participate in the Honors Program are encouraged to apply, and may be asked to submit letters of recommendation from two teachers. To be considered for admission, students applying from high school shall also submit a two page essay as part of the application. Students who demonstrate superior performance upon completing their first semester at the University of Idaho (achieving a minimum 3.5 GPA) may also apply for admission. Transfer students are considered for admission on a case-by-case basis; students in good standing in an honors program at their previous school are automatically considered for admission. Their transcripts will be evaluated and appropriate credit given toward courses in the honors curriculum.

**Participation Requirements.** A member in good standing of the University Honors Program must be registered at UI, average one honors course every second semester, and maintain a minimum 3.2 cumulative GPA. Students who complete 19 credits of required honors courses, with a cumulative GPA of 3.00 or above in those courses, will earn the "University Honors Core Award." Students who complete 29 credits in required honors course work, with a cumulative GPA of 3.00 or above in those courses, will earn the "University Honors Program Certificate." Depending on which courses students select, 16 to 20 credits required for an honors certificate or core award also satisfy the general university core requirements in the humanities, social sciences, and sciences that all students must complete to graduate.

**Scholarship Availability**. Each year scholarships are offered to a select number of students entering the program. These non-need awards are based on academic merit, and are applied to resident fees. No additional application form is required. Likewise, a select number of Honors Program out-of-state tuition waivers are offered to non-Idaho residents. Both scholarships and tuition waivers are awarded for up to eight semesters for freshmen, six semesters for sophomores, and so on. Renewal of funding is contingent on a student's satisfactory progress toward earning an honors certificate while maintaining an overall GPA

of 3.3. In addition, UHP members have been successful in taking advantage of close mentorship and advice regarding prestigious national scholarship opportunities.

# Certificates of Completion

The University offers Certificates of Completion in various academic disciplines. The Certificate of Completion is a coherent body of work designed to reflect specialized knowledge in a specific discipline or area.

Each certificate requires at least 12 credits of course work as determined by the administrative unit offering the certificate (six of which may be for work completed at another regionally accredited institution). The course work must not be more than five years old unless it is being used in conjunction with the completion of a graduate degree.

Courses must be completed with grades of "C" or better unless otherwise specified (some certificates require grades of "B" or better).

In order to enroll in 500-level courses, students must hold an undergraduate degree from a regionally accredited institution with a minimum 2.80 cumulative grade-point average.

See Part 1 for a complete list of current offerings. Requirements for certificates offered by a department may be obtained at the relevant department. Currently, the UI offers one university-wide certificates which a student may receive from any UI college. The requirements for this certificate is listed below:

### University of Idaho Leadership Certificate

The Leadership Program develops general leadership skills that are needed and valued in the workplace and community but not commonly taught in the traditional college classroom. This 18-credit program, open to all undergraduates, consists of courses and structured practicum that provide academic knowledge mixed with practical, hands-on experience. An application form must be filed in their college office. The college associate deans or other college designees will advise students and approve applications, study plans, practicum, and course substitutions.

**General Leadership and Communication Courses (12 cr).** Students must complete 12 credits with a minimum of 6 cr in leadership and 3 cr in communication courses.

Leadership courses (minimum of 6 cr):

- AgEd 450 Developing Leaders (2 cr)
- AgEd 252 Developing Organizational (1cr)
- AgEd 253 Parliamentary Procedure (1cr)
- Bus 311 Introduction to Management (3 cr)
- Bus 413 Organizational Behavior (3cr)
- Bus 418 Organizational Theory (3 cr)
- MS 101/111 Introduction to Military Science/Leadership Lab (2 cr)
- MS 102/112 Fundamentals of Leadership and Management /Leadership Lab (2 cr)
- MS 201/211 Applied Leadership and Management/Leadership Lab (3 cr)
- MS 202/212 Applied Leadership and Management/Leadership Lab (3 cr)
- NR 310 Leadership for Natural Resource Management (1 cr)
- PEP 460 Competition and Social Values (2 cr)
- REC 254 Camp Leadership (3 cr)
- REC 320 Outdoor Recreation Leadership (2 cr)
- REC 329 Leadership in Recreation (3 cr)
- RRT 491 Wilderness Leadership for Personal Growth (3 cr)
- RRT 486 Public Involvement in Natural Resource Management (3 cr)

Communication courses (minimum of 3 cr):

- Art 121-122 Visual Communication and the Design Process (3 cr)
- ComG 233 Interpersonal Communication (3 cr)
- ComG 235 Organizational Communication (3 cr)
- ComG 331 Conflict Management (3 cr)
- ComG 332 Communication and the Small Group (3 cr)
- Comm 121 Media Writing (3 cr)
- Comm 252 Principles of Public Relations (3 cr)
- Comm 431 Professional Presentation Techniques (3 cr)
- Engl 207 Persuasive Writing (3 cr)
- Engl 313 Business Writing (3 cr)
- Engl 317 Technical Writing (3 cr)
- RRT 387 Environmental and Cultural Interpretation (3)
- RRT 394 Natural Resources Communication (3 cr)

**Leadership Development Courses (6 cr).** Students must complete 6 cr with a minimum of 2 cr each in leadership practicum and service practicum.

497 Practicum in Leadership (supervised leadership development through on-campus or off-campus organizations, living groups, etc.) (2-4 cr)

497 Practicum in Service (supervised university/community service such as tutoring, mentoring, teaching, etc.) (2-4 cr)

# Cooperative Programs

The university participates in a number of cooperative arrangements in the state and region to extend resources and take advantage of special facilities.

## Washington State University

Located only eight miles apart, the University of Idaho and Washington State University, in order to take advantage of unique strengths of each institution, have for some time operated a cooperative graduate and undergraduate course program. Courses available on either campus are identified in departmental listings, and offerings are listed in the *Time Schedule*. In addition, the two schools cooperate in programs in medicine, veterinary medicine, and food science and technology.

## Medical Education (WWAMI Program)

**Michael B. Laskowski, Director, WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Medical Education Program (304 Student Health Services Bldg. 83844-4207; phone 208/885-6696; e-mail brendah@uidaho.edu). Faculty: Gregory A. Bohach, Mark E. DeSantis, Victor P. Eroschenko, Fredy E. Martinez, Thomas A. McKean, Scott A. Minnich, Philip J. Mohan, Chris Williams.**

The following serve as preceptors of medical science: Malini Ariyawansa, Eugene M. Baldeck, Michael Baldeek, Steve Bergmann, Geneen Bigsby, Glenn Bigsby, Janice Boughton, Lennis Boyer, Patricia Brady, John B. Brown, Larry Brown, Gregory Burrato, Richard Caggiano, Herbert Coussons, Steve Cox, E. Wayne Day, Stacey R. Dean, Ronald DuPont, Richard J. Eggleston, Richard A. Emtman, Michael Ford, H. Graeme French, Alvin L. Frostad, Dennis Garcia, Catherine M. Gorchels, John Grauke, Bruce L. Ham, Lawrence Hammond, John Harris, Cameron D. Hinman, Bonnie L. Houff, Richard Howe, Martha K. Hunt, Jay A. Hunter, Bryan Johnson, Kevin M. Johnson, John Keizur, David M. Kendrick, Marvin Kym, Lynn Lagerquist, Jerome Lang, Murray Larsen, Wenzel A. Leff, John Lundeby, Joyce Majure, John Mannschreck, Fredy E. Martinez, Barbara Martyn, Homa S. Memon, Timothy Moody, Barbara Morgan, C. Michael Murphy, Robert Olson, Evonn O'Neil, Steve Ozeran, Steven Pennington, Lloyd E. Perino, Dennis L. Peterson, Jeff Radakovich, Christopher Reisenauer, Matthew L. Rice, Charles Richards, Michael T. Rooney, Wayne Ruby, David Rych, Daniel Schmidt, Vicki Short, David D. Shupe, Dennis Simpson, Francis K. Spain, David A. Spencer, David N. Spencer, John R. Stoianoff, Gordon Teel, Timothy J. Teyler, Robert M. Ting, Ed Tingstad, John L. Torquato, Robert W. Tulin, Noelle Westrum, Malcolm Winter.

WWAMI is a cooperative medical education program designed to enhance the training capability of the University of Washington School of Medicine (UWSM) by utilizing the facilities of Washington State University (WSU), University of Alaska, Montana State University, and the University of Idaho (UI). The WWAMI program utilizes the physicians' expertise in the states by providing clinical clerkships in the four-state area via a network of 23 community training units for third- and fourth-year medical students. The WWAMI program at UI offers first-year medical students an ideal opportunity to study basic medical courses. Because of the small class size, there is a splendid opportunity to interact closely with the faculty.

The WWAMI program allows access to medical education for Idaho residents by providing positions at UWSM that are reserved exclusively for Idaho residents. Beginning in 1994, 16 first-year students are admitted annually.

The WWAMI program was developed in Idaho to train Idaho residents in medical studies, to address the need for more primary care physicians practicing in rural areas, to extend the resources and facilities of an excellent medical school into Idaho, to improve the quality of patient care, and to minimize the cost of medical education by the use of existing facilities.

Eligibility for consideration as a WWAMI medical student requires certification as an Idaho resident. UI's Undergraduate Admissions Office is responsible for residency certification.

Students interested in WWAMI apply directly to UWSM. Idaho residents take their first year of medical studies at UI. First-year courses are offered conjointly by UI and WSU in parallel with courses at UWSM. All participating faculty at UI and WSU are subject to the approval of UWSM and are eminently qualified scientists and scholars.

Many of the physicians in the Moscow-Pullman-Lewiston area are involved in the preceptorship program in which the students work with local physicians and observe their practice in the office and at the hospital.

Since 1972, community clinical units in Boise and Pocatello have been training upper-division medical students in the areas of obstetrics and gynecology, pediatrics, and family medicine. A UWSM clerkship in internal medicine is also offered through the V.A. Hospital in Boise.

Special facilities are maintained for the medical students, including individual study carrels, videotapes, films, and other resource materials in a Curriculum Support Center.

Participants in the WWAMI program are matriculated students of the University of Washington Medical School. Upon completion of their studies, they receive the M.D. degree. Following graduation, a postgraduate (internship/residency) training period of three to five years is considered the normal pathway to private practice. Medical students may also be approved for graduate studies at UWSM leading to the M.S. or Ph.D. degree. The M.D.-Ph.D. curriculum usually requires a minimum of six years of study.

## Veterinary Medical Education (WOI)

The University of Idaho cooperates with Washington State University and Oregon State University in a program of veterinary medical education, research, and service. When accepted in the WOI program, students from Idaho take the first three years and most of their fourth year of professional training in veterinary medicine at Washington State University. In the fourth year of the program, students also receive part of their training at the UI Caine Veterinary Teaching Center at Caldwell, Idaho, where they can specialize in food animal production medicine. Cooperative graduate programs leading to M.S. and Ph.D. degrees are also available. Idaho students seeking to enter the professional program must complete a Washington State University Uniform Undergraduate Application Form as well as a WOI Program application. Both may be obtained from and returned to the Office of Student Services, College of Veterinary Medicine, Washington State University, Pullman, Washington 99164-7012. In addition, Idaho applicants must secure certification of Idaho residency status by completing and submitting the appropriate residency certification forms available through the University of Idaho Undergraduate Admissions Office.

## AWU Program

The university is a member of Associated Western Universities, which is a cooperative venture of certain institutions to make use of national laboratories located in the west. Financial support is available from the U.S. Department of Energy for graduate students and faculty to spend periods of time, up to one year, pursuing research projects at a number of these laboratories.

## Interuniversity Program in Public Administration

**Florence A. Heffron, Department of Political Science and Public Affairs Research (205 Admin. Bldg.; 208/885-6120).**

The University of Idaho, with Idaho State University and Boise State University, offers a cooperative graduate program leading to the M.P.A. degree to provide present and prospective public administrators with a professional education and to prepare them to understand and adjust to a changing and challenging environment. Courses in core areas and in optional areas of emphasis, such as general public administration, natural resources administration, public works administration, and public finance, management, and budgeting, may be taken at any of the participating institutions without restriction. For further information, consult the Department of Political Science and Public Affairs Research.

# Continuing Education

Continuing education programs at UI are divided into several classifications, each separately administered: credit courses, independent study, video outreach, noncredit classes, and workshops, shortcourses, and conferences. Each college is responsible for the development of continuing education programs based on the needs that are identified.

**Credit Courses.** These courses offer University of Idaho credit and are available throughout the state within the limitations indicated above. Usually a minimum of 13 students is required to offer a course, and more may be needed if instructor travel is required. In northern Idaho, courses are more commonly taught by members of the resident faculty commuting from the Moscow campus. In locations distant from the home campus, local instructors who are fully qualified may be employed subject to approval of the respective college in which the course is offered.

Generally, no single catalog of continuing education courses is available before the beginning of a semester. Instead, it is simply noted that nearly any course in the university catalog may be offered provided that an adequate number of students, a qualified instructor, and appropriate facilities are available. The schedule of courses in any geographic area is developed near the beginning of each semester and summer session. Each college is responsible for identifying and developing the courses needed, registration of students, and the administration of these programs. Individuals interested in taking courses for credit should directly contact the respective college to determine the courses available in their geographic area.

Admission procedures for enrolling in continuing education courses are streamlined. Generally, it is possible to register for a course at the time of the initial class session. In some cases to guarantee in advance the offering of a course, advance registration may be requested. Standards for admission to these courses are usually the same as for admission to credit courses on campus. Students in residence must have approval of their college before enrolling in additional credit courses.

# Independent Study in Idaho

Independent Study in Idaho (ISI) is a consortium of five Idaho colleges/universities (University of Idaho, Boise State University, Idaho State University, Lewis-Clark State College, and North Idaho College).

UI courses are offered through Independent Study in Idaho, located on the UI campus. These courses are offered in printed format, via the Internet, and some courses are supplemented by videotape. Independent Study courses parallel their on-campus counterparts in content and credits, but may be started at any time, with one year allowed for completion. Most institutions limit the amount of independent study course work applicable toward a degree. For UI limitations, see regulation J-5 in Part 3. It is recommended that a student currently enrolled in an Idaho postsecondary institution, receive written permission from his or her dean and advisor before registering for an independent study course. Independent Study grades are not computed in the student's grade-point average at UI.

All UI courses offered through Independent Study must be approved by the University Curriculum Committee (UCC) and be listed in Part 6 of this catalog. If UCC approves a change to a course (i.e. change in credit hours, course title, or content), students enrolled in the course may finish the remainder of their year under the terms of the "old" course. Once the change is effective, new students registering for the course and those seeking an extension, must follow the terms of the "new" course.

To receive a catalog that contains further information on policies/procedures, registration, and a complete listing of college and high school courses, call Independent Study in Idaho at 208/885-6641 or toll free at 877/464-3246, or e-mail a request to indepst@uidaho.edu. You may also write or stop by their office in the North Campus Center. Full information is also listed on the Internet at http://www.academic.uidaho.edu/indep-study.

# Community Enrichment Program

**Noncredit.** The Community Enrichment Program office develops and administers the noncredit courses for the UI campus, Moscow, and the surrounding communities. During the fall, spring, and summer terms, over 100 classes are offered per semester with enrollments each year of over 6,000 participants, including children, youth, and adults. The program consists of classes in the arts, dance, music, recreation and hobbies, languages, health and fitness, foods and cooking, humanities, self-improvement, nature and the environment, computers, test preparation, and career development. Programs are developed with consideration given to the needs and desires of the general public, as well as to the economic times. Each class and instructor is independent in content, teaching style, duration, and fees; however, all have the common bond of extending the opportunities and resources of the university to the surrounding area. Classes are held both on campus and in the business community. These evening and weekend classes are scheduled to complement the working person's schedule.

For a catalog, call the Community Enrichment Program at 208/885-6486 or e-mail enrprog@uidaho.edu.

**Life on Wheels RV Conference.** This unique program, located on the UI campus, offers present and prospective RVers opportunities to learn directly from experts about the vehicles and the RV lifestyle so they can enjoy more fully this important means of recreation and travel. The conference features over 100 different classes of interest to RVers. More information is available from the Enrichment Program or by visiting the web site at http://www.uidaho.edu/cep/low.

**Elderhostel.** Each summer UI offers one Elderhostel week in Moscow, where Elderhostelers combine educational classes and recreation. Inspired by youth hostels and folk schools of Europe and guided by the needs of older citizens for intellectual stimulation and physical adventure, Elderhostel is for elder citizens on the move--not just in terms of travel, but in the sense of reaching out to new experiences. Elderhostel is based on the belief that retirement does not have to mean withdrawal, but rather that one's later years are an opportunity to enjoy new experiences. Those 55 and over are eligible for this program, which costs approximately $530 per week for classes, room, board, field trips, and entertainment.

For a catalog of schools and classes, write: Elderhostel Inc., 11 Avenue de Lafayette, Boston, MA 02111-1746 or call 877/426-8056. For more information about UI Elderhostel, call the Community Enrichment Program at 208/885-6486.

# University of Idaho Centers

## University of Idaho, Boise

**Trudy Anderson, Interim Dean (800 Park Blvd., Suite 200, Boise, Idaho 83712; 208/334-2999).**

The University of Idaho Center, Boise, was established to serve certification and graduate program needs for persons involved in elementary, secondary, and higher education, and engineering within Boise and the adjacent areas. Certification programs are available in adult, counselor, and technology education; education leadership; and special education administration.

Graduate programs in education include the master's and doctorate with an emphasis on professional-technical education, educational leadership, and adult education. Sixth year professional programs may be completed in educational leadership, special education, school psychology, and professional-technical education. Graduate programs in counseling include a master's degree with an emphasis in rehabilitation counseling and a specialist program in school psychology.

The center also houses the College of Engineering, Boise. The center offers outstanding graduate engineering instruction, research, continuing education, and outreach services for individuals and businesses in the Treasure Valley. The focus of educational activities is on innovative master's and doctoral programs uniquely suited for the engineer in industry or full-time students. Externally funded research is solicited from both government and industry sources, with an emphasis on application of advanced design and manufacturing processes. Thesis topics and projects for degree requirements can be tied to ongoing industry activity. Short courses in specialized areas are provided to help practicing engineers gain additional skills and stay professionally current. The following degree programs are available using a combination of resident faculty and video courses: Agricultural, Biological Systems, Civil, Computer, Electrical, and Mechanical Engineering (M.Engr., M.S., Ph.D.) and Engineering Management (M.Engr.).

Persons representing a variety of University of Idaho programs are housed in the center. They include a College of Agriculture communication specialist, an agricultural education supervisor, a nutrition specialist, a family development specialist, a pesticide specialist, the college's regional office for off-campus research and cooperative extension programs, the regional development director for Vandal Boosters, the director of development for southern Idaho, a media relations specialist, the associate director of New Student Services, the project coordinator for CDHD, the special assistant to the president's office, the statewide staff development coordinator for Adult Basic Education, the director of the Quality Schools Consortium, a professional staff development program for school administrators, the Idaho Administrators' Assistance Center, College of Law director of development, and the external programs coordinator.

## University of Idaho, Coeur d'Alene

**Jack Dawson, Dean (925 W. Garden Ave., Coeur d'Alene, Idaho 83814; phone 208/667-2588, FAX 208/664-1272; http://www.uicda.uidaho.edu, cdactr@uidaho.edu).**

The University of Idaho Center, Coeur d'Alene, was established to bring UI programs to the people of northern Idaho and Eastern Washington. With its cooperative relationships with other state of Idaho institutions as well as those in eastern Washington, students can finish various degrees without leaving the Coeur d'Alene area.

**Computer Engineering (B.S.Comp.E.).** *The Computer Engineering Program was created specifically to meet the high employer demand for graduates capable of developing complex computer based systems.* These systems require a solid understanding of the theory and application of both software and hardware to engineering solutions. The wide range of needs in these areas provides career opportunities in design, production, reliability and quality control, and research and development. Course work is offered in collaboration with Washington State University, Spokane.

**Education (B.S.Ed., M.S., M.Ed., Ed.S.Ed.Ldrshp.).** The programs offered include career prospects in teaching, counseling, professional/technical education, and administration. One may choose to be a K-8 generalist or specialize in special education or physical education. Counseling opportunities are included in education (all levels K-16), rehabilitation, or community settings. Professional/technical education opens doors to vocational and adult education positions. Administration course work allows a person to enter the supervisory roles in the education arena. The specialist degree is designed for aspiring superintendents.

**Environmental Science (B.S.Env.S., M.S.).** *The demand for environmental professionals is at an all-time high.* The career opportunities in this field are diverse and numerous. Graduates are employed in the private and public sectors in areas such as natural resource management, pollution prevention, air and water quality monitoring, hazardous waste management, environmental and land use planning, and environmental regulation and compliance.

**Psychology (B.S.).** The program includes the study of developmental processes, social psychology, learning and memory, personality, clinical psychology, biological processes, and sensation/perception. Core and elective courses are available at North Idaho College and Lewis and Clark State College in Coeur d'Alene.

## University of Idaho, Idaho Falls

**Robert R. Stiger, Dean (1776 Science Ctr. Dr., Idaho Falls, Idaho 83402; 208/282-7960).**

The University of Idaho, in partnership with Idaho State University, operates the Center for Higher Education at University Place in Idaho Falls. University Place serves over 3,000 undergraduate and graduate students in southeast Idaho. The center is ideally located on the banks of the Snake River and adjacent to the Idaho National Engineering and Environmental Laboratory (INEEL). Yellowstone and Teton National Parks, scenic forests, pristine wilderness areas, and world-class recreational activities are located nearby.

Over 150 University of Idaho courses are offered at the center each semester. Courses are taught on-site by resident and affiliate faculty and are offered via interactive video, videotape, and the Internet. Students may complete **undergraduate** degrees in agribusiness, computer science, computer engineering, environmental science, general studies, horticulture, plant science, and industrial technology. **Graduate** degrees are available in adult education, biological and agricultural engineering, chemical engineering, chemistry, civil engineering, computer science, computer engineering, electrical engineering, engineering management, environmental engineering, environmental science, hydrology, industrial safety, interdisciplinary studies, MAT mathematics, mechanical engineering, metallurgy, nuclear engineering, plant science, and systems engineering.

The College of Agriculture District IV Research and Extension Office at the Idaho Falls Center provides extension programming and agriculture related activities. The center is also home to the Science Mechanics Materials (SiMM) Laboratory and the Idaho Falls office of the Idaho Water Resources Research Institute (IWRRI).

# Engineering Outreach Program

**Barry D. Willis, Associate Dean for Outreach, College of Engineering (P.O. Box 441014, Moscow ID 83844-1014; phone 208/885-6373; e-mail outreach@uidaho.edu).**

The College of Engineering's Engineering Outreach Program was founded in 1975. A variety of media resources, including videotape, e-mail, the world-wide-web, CD-ROM, and print materials, is used to deliver over 90 continually updated courses in 11 graduate programs to more than 350 students worldwide each semester. The staff and faculty are committed to providing quality courses and excellent support services to off-campus students.

**Affiliations.** Engineering Outreach is affiliated with the following organizations:

- National Technological University (NTU), an accredited consortium of 52 universities that offers master's degrees in engineering and business areas at a distance.
- Defense Activity for Non-Traditional Education Support (DANTES). Engineering Outreach has been selected as a graduate program that meets the needs of U.S. military students.
- Association for Media-based Continuing Education for Engineers (AMCEE), a non-profit consortium of 32 engineering universities who have collaborated to develop a wide variety of quality continuing education programs for engineers, scientists, and technicians.
- National University Degrees Consortium (NUDC), which promotes distance education programs from universities nationwide.

**Engineering Outreach Degree Programs.** Engineering Outreach courses carry regular UI credit and may be used toward a degree program at UI or transferred to other institutions accepting credit from UI. The degree earned at a distance through Engineering Outreach upon completion of program requirements is the same degree earned by on-campus students. Degrees currently available through Engineering Outreach include:

- Biological and Agricultural Engineering – emphasis in water resources and management (M.S., M.Engr.)
- Civil Engineering (M.Engr.)
- Computer Engineering (M.S., M.Engr.)
- Computer Science (M.S., Ph.D.)
- Electrical Engineering (M.S., M.Engr., Ph.D.)
- Engineering Management (M.Engr.)
- Environmental Science - emphasis in water science (M.S.)
- Geological Engineering (M.S.)
- Mechanical Engineering (M.Engr.)
- Psychology - emphasis in human factors (M.S.)
- Teaching Mathematics (M.A.T.)

**Engineering Outreach Short Courses on CD-ROM**. Short courses, typically 12 hours in duration, are specifically designed for background study or professional advancement and are not included in any UI program curriculum. Engineering Outreach is now offering short courses on CDs in the following areas:

- Programming in JAVA
- CMOS Analog Circuit Design

Admission to the UI is not required for these courses. A short course will not appear on a UI grade transcript. A short course may be ordered at anytime (Engineering Outreach deadlines do not apply). To order a short course, please contact Engineering Outreach at (800) 824-2889, ext 4642.

**Engineering Outreach Certificates.** A certificate signifies that a student has successfully completed a series of predetermined classes in a specific emphasis area. Typically 12 credits in total, a certificate consists of a combination of required and elective courses. With graduate committee approval, UI graduate students can include the certificate classes as part of their study plan. Nondegree students can enhance their knowledge in an area without seeking a graduate degree, and simultaneously build a strong foundation for a master's degree at a future date. All course work can be completed at a distance through Engineering Outreach. Certificates in the following areas are currently available:

- Structural Engineering

- Water Resources Engineering
- Secure and Dependable Computing Systems
- Character Education
- Communication Systems
- Power System Protection and Relaying
- Environmental Water Science
- Applied Geotechnics
- Advanced Materials Design
- HVAC Systems

For more information, see the Engineering Outreach website, http://www.uidaho.edu/eo.

**HOW IT WORKS**

All courses are professionally videotaped in a studio classroom setting at the UI. Some classes will be produced during the current semester; others were produced in a previous semester.

**Shipping Information/Returning Tapes.** Typically, three 50-minute videotaped lectures are shipped weekly throughout the semester. Classes are not self-paced; students are expected to maintain normal progress in the class by staying no more than two weeks behind the on-campus schedule. International students must also pay Federal Express shipping charges, including duties and taxes.

**University Centers.** Students who live near one of the UI Centers at Boise, Coeur d'Alene, or Idaho Falls may view class videotapes on location for a reduced fee. The coordinator at each center assists students by: (1) receiving tapes, course materials, and exams from Engineering Outreach, (2) facilitating tape viewing, (3) distributing course materials, (4) proctoring exams, and (5) collecting and returning homework. Tapes may be viewed during times to be determined by each UI Center and may not be checked-out overnight. Please contact the center prior to registration to determine the office hours for tape viewing.

**Instructor Contact.** Instructors for all courses are available to answer questions during the semester. Students can reach instructors by calling Engineering Outreach at (800) 824-2889, by e-mail, or by fax.

**E-mail and Internet Access.** E-mail and Internet access is required for all Engineering Outreach students. UI considers E-mail addresses part of "directory" information. Directory information is not protected by the FERPA (Family Educational Rights and Privacy Act) unless a student specifically requests it to be confidential. A student's directory information will be kept confidential **ONLY** if the student submits a "Request to Prevent Disclosure of Directory Information" form to the Registrar's Office. This form can be downloaded at http://www.uidaho.edu/registrar/forms.html**. If this form is not filed with the registrar, your e-mail address will be released to the other students in the class.** If the request for e-mail confidentiality is submitted <u>after</u> the close of registration, please inform Engineering Outreach right away. Contact Engineering Outreach if you have any questions. For on-line information about FERPA, see http://www.uidaho.edu/registrar/ferpa.html.

**Course Materials.** Students enrolled in classes that were produced in a previous semester will receive all course handouts with their first set of tapes. Those enrolled in courses produced in the current semester will receive material continuously during the term. Printed copies of course material are not provided if this material is available on the course web site, accessible through the Engineering Outreach web site, http://www.uidaho.edu/eo (if a password is required, contact the instructor).

**Homework.** Students send completed homework directly to the instructor by mail, fax, or e-mail (retain a copy if sending by mail). Students who view tapes at UI Centers submit completed assignments to the center coordinators. Engineering Outreach returns graded homework to students, but does not track or record grades for homework or projects.

**Exams.** An exam coordinator (proctor) is responsible for supervising and returning exams to Engineering Outreach; graded exams are returned to students by Engineering Outreach (UI Center students receive exams from the center coordinator). Proctors must be approved by Engineering Outreach; must certify that they are not a personal friend, family member, or work subordinate; and must certify that they are not enrolled in any Engineering Outreach course. Persons to consider are: (1) a faculty or staff member at a

local educational institution, (2) a work supervisor, or (3) U.S. military education officer. Be prepared to provide proctor information (i.e. name, address, phone, fax, and e-mail) at the time of registration.

**Library Services.** The UI Library offers many reference and reserve materials via the Internet. For more information, visit the Library website, http://www.lib.uidaho.edu.

**Ordering Textbooks.** Textbooks can be purchased at the UI Bookstore, ordered on-line, or by phone. To order books by phone, call (800) 824-2889, press 0, and ask for the Bookstore. Payment can be made by VISA, MasterCard, Discover, or COD. Idaho residents pay 5% sales tax. Textbook information for each class is listed on the Bookstore's website, http://www.uidahobookstore.com. If purchasing books from another source, include the ISBN to get the correct edition.

**REGISTRATION & FEES**

Engineering Outreach students are encouraged to register early, especially for graduate-level courses that are scheduled for taping during the current semester. Courses with low enrollment may be cancelled prior to the Engineering Outreach registration deadline. Please note the registration deadlines below.

**Engineering Outreach Calendar.** The Engineering Outreach program operates on a semester schedule. The Engineering Outreach printed and on-line catalog lists the available courses that semester.

| | **Registration Deadline** | **EO Courses Begin** | **Course Completion Deadline** |
|---|---|---|---|
| Summer 2002 | May 31, 2002 | June 7, 2002 | August 16, 2002 |
| Fall 2002 | August 16, 2002 | August 26, 2002 | January 3, 2003 |
| Spring 2003 | January 3, 2003 | January 13, 2003 | May 30, 2003 |

**How to Register.** The UI on-line registration system is <u>not</u> used for Engineering Outreach courses. Instead, Engineering Outreach students register by phone, mail, or fax (phone 800/824-2889, ext 4642). Download and print a *Registration Form* from http://www.uidaho.edu/eo and send it to the address or fax number on the form.

**Registration & Admission Status.** Engineering Outreach students must be admitted to the UI. See Undergraduate and Graduate Admission sections in Part 2.

**Fees.** Engineering Outreach students pay a "per credit" fee and do not pay resident/non-resident fees. Engineering Outreach ships videotapes directly to the address indicated by the student at the time of registration. Tapes are also shipped to the UI Centers (Boise, Coeur d'Alene, or Idaho Falls) for students to view tapes on location. Full payment is due at the time of registration by credit card, check, or money order payable to "UI Bursar." Tuition assistance vouchers from U.S. military or corporate students are also accepted. Fees are subject to change at any time by the Idaho State Board of Regents.

**Fee for Tapes Shipped Directly to Students**

| | |
|---|---|
| All 500-level courses (taken by Grad, Undergrad, or Nondegree students) | $ 410 per credit |
| Grad Students (taking 100-500 level courses) | $ 410 per credit |
| Nondegree or Undergrad Students (taking 100-400 level courses) | $ 383 per credit |

**Fee for Tapes Shipped to UI Centers**

| | |
|---|---|
| All 500-level courses (taken by Grad, Undergrad, or Nondegree students) | $ 274 per credit |
| Grad Students (taking 100-500 level courses) | $ 274 per credit |
| Nondegree or Undergrad Students (taking 100-400 level courses) | $ 247 per credit |

**Other Costs.** The following costs are in addition to registration fees:

- **Textbooks:** Typically $80-$120.

- **Course Notes:** Some courses may require a course packet with an average cost of $20.
- **Software:** Some courses may require the purchase of software with an average cost of $50-$100.
- **Internet Access:** E-mail and Internet accesses are required for all Engineering Outreach students.
- **Mailing Costs:** Students are responsible for mailing homework to Engineering Outreach.
- **International Shipping:** Videotapes and materials sent to international addresses (excluding U.S. Military APO/FPO addresses) are shipped via Federal Express. Federal Express charges are in addition to the class registration fee. Contact Engineering Outreach for an estimate.

**Veterans' Benefits.** Students using the GI Bill are required to pay the registration fees by the deadline. Questions can be directed to the Veterans' Adviser, Office of the Dean of Students.

**Financial Aid.** Students planning to use financial aid to pay fees must have a completed file in the Financial Aid Office. The amount of the award must be verified by Engineering Outreach prior to the registration deadline. Fees will be deducted from financial aid checks and remaining balances will be deposited by automatic deposit or will be mailed from Engineering Outreach. For on-line financial aid information, see http://www.its.uidaho.edu/finaid.

**Drops & Refunds.** To drop a class, e-mail Engineering Outreach or submit a *Student Request Form* located on-line. If a student drops their course through the on-line registration system, the student must notify Engineering Outreach to avoid shipping and refund errors. Students requesting to withdraw after the deadline must petition the Academic Petitions Committee (contact Engineering Outreach).

**Incompletes.** If extenuating circumstances make it impossible for Engineering Outreach students to complete their coursework on time, they may be eligible for a grade of "Incomplete" (see regulation F in Part 3). To request a grade of "I", contact the instructor to determine if support documentation will be required. Submit a *Student Request Form* by mail or fax (download form from http://www.uidaho.edu/eo). For assistance, contact the Engineering Outreach registration coordinator at (800) 824-2889, ext 4642.

**Final Grade Reports.** UI does not mail final grade reports to students. Final grades and transcripts are on-line via the UI's secure information system, http://max.csrv.uidaho.edu. A student ID and PIN are required for access. Contact Engineering Outreach for assistance, (800) 824-2889, ext 4642. Information on grades and transcripts can be found at http://www.uidaho.edu/registrar.

# Summer Programs

Summer Session is an integral part of the year-round instructional program at the University of Idaho. A fourteen-week summer session begins about the third week of May. The flexible summer schedule includes a session that begins the Monday following Commencement, a second session that starts in mid-June, and a late four-week session. Summer session ends the Friday prior to the start of fall semester. The summer schedule of classes is designed to provide students with the opportunity to complete their academic programs in a timely manner. Special and innovative programs are offered to meet the needs of in-service professionals and other clientele throughout the state and nation.

Academic regulations included in this catalog are applicable during the summer session. Anyone interested in enrolling is invited to write the Summer Programs Office for a copy of the summer catalog that is published each year in late February or early March. The catalog contains complete information needed to register for the summer session. For more information, call (208) 885-6237.

# Department of Accounting

**Marcia S. Niles, Dept. Head (125A J. A. Albertson Bldg. 83844-3161; phone 208/885-6453).** ***Faculty:*** **Steven V. Campbell, Teresa P. Gordon, Jeffrey L. Harkins, Marla A. Kraut, Marcia S. Niles, Hugh D. Pforsich, Heather S. Rogers, Glen G. Utzman.** ***Adjunct Faculty:*** **John L. Farbo.**

The goal of the accounting program is to prepare graduates to enter the accounting profession in public accounting, industry, or the public sector. The program develops and enhances a student's thinking, judgment, and communication skills, while providing a sound technical foundation. The accounting program is fully accredited by the AACSB.

The department offers two degrees, a bachelor of science in business and a master of accountancy.

The 128-credit bachelor's degree in accounting has a managerial or controllership emphasis, designed to prepare students for professional positions as employees. Graduates are qualified for jobs as cost accountants, as accountants within a governmental unit, as production accountants for a manufacturer, as project managers, or as internal auditors.

The M.Acct. degree program has primary emphasis areas or tracks that include auditing and financial accounting, corporate accounting management and controllership, government and not-for-profit fiscal management, international accounting, accounting information systems analysis and design, and taxation. Other emphasis areas or tracks are permitted, subject to approval by the departmental graduate committee.

Admission to the M.Acct. degree requires (1) a B.S., B.A., or B.B.A. degree from an accredited college or university, (2) acceptable GRE or GMAT examination score, (3) an undergraduate grade-point average of at least 3.00, and (4) a minimum TOEFL score of 550 (if applicable).

The department, in conjunction with the College of Law, offers a concurrent J.D./M.Acct. degree. See the College of Graduate Studies and the College of Law sections in Part 4 for additional information on graduate/law concurrent degrees.

## Courses

See Part 6 for courses in Accounting (Acct).

## Undergraduate Curricular Requirements

### ACCOUNTING (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3) with the limitation that accounting majors must take Anth 100, Soc 101, or Psyc 101 for the social science requirement, the general requirements for graduation from the College of Business and Economics (see part 4), and:

Acct 275 Accounting Information Systems (3 cr)
Acct 300 Accounting Concepts and Systems (3 cr) or Acct 310-311 Accounting for Business Decisions I-II (4 cr)
Acct 315 Corporate Accounting and Reporting (3 cr)
Acct 385 Cost and Management Accounting (3 cr)
Acct 483 Federal and State Taxes I (3 cr)
Acct 492 Auditing and Controls (3 cr)
Accounting electives chosen from the following (6 cr):
- BLaw 420 Commercial Law
- Acct 430 Accounting for Public Sector Entities
- Acct 484 Federal and State Taxes II
- Acct 486 Contemporary Management Accounting Issues
- Acct 490 Advanced Corporate Accounting and Reporting

One of the following courses (3 cr):
- Bus 250 Introductory Systems Development
- CS 101 Introduction to Computer Science
- CS 112 Introduction to Problem Solving and Programming
- Phil 201 Critical Thinking
- Phil 202 Introduction to Symbolic Logic

Additional courses in communication or writing beyond the UI core (upper div preferred) (6 cr)
Electives to total 128 credits for the degree

## Academic Minor Requirements

### ACCOUNTING MINOR

Acct 205 Fundamentals of Accounting (4 cr) or Acct 201-202 Intro to Financial Accounting & Intro to Managerial Accounting (6 cr)
Acct 275 Accounting Information Systems (3 cr)
Acct 300 Accounting Concepts and Systems (3 cr)
Two courses selected from the following (6 cr)
- Acct 315 Corporate Accounting and Reporting
- Acct 381 Accounting for Managers and Investors or 385 Cost and Mgt Accounting
- Acct 430 Accounting for Public Sector Entities
- Acct 483 Federal and State Taxes I
- Acct 484 Federal and State Taxes II
- Acct 486 Contemporary Management Accounting Issues
- Acct 490 Advanced Corporate Accounting and Reporting
- Acct 492 Auditing and Controls
- BLaw 420 Commercial Law

## Graduate Degree Program

The Master of Accountancy degree requires 30 semester credits beyond the bachelor's degree, and is designed to meet the 150-credit requirement for taking the CPA examination in Idaho. Completion of this degree qualifies students to enter the public accounting profession in auditing, tax, or other positions ultimately requiring a CPA license.

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Accounting. See the College of Graduate Studies section of part 4 for the general requirements applicable to the M.S. degree.

Students seeking the M.Acct. degree will develop a degree plan in consultation with their advisors, complete at least 30 credits of course work, and successfully complete a comprehensive written examination.

Required courses include Acct 561, 570, 590, and 592, plus one course chosen from Acct 530, 584, 585, 586, 598, 599 (students must have taken at least one tax class at the undergraduate or graduate level). An additional 15 credits are chosen from approved options, which must include 9 credits outside of accounting. Those electing the thesis option include 6 credits of Acct 500 in the additional 15 credits.

# Division of Adult, Counselor, and Technlogy Education

**James A. Gregson, Div. Director (210 Educ. Bldg. 83844-3083; phone 208/885-6556; e-mail acte@uidaho.edu; http://www.uidaho.edu/ed/acte).**

***Adult Education Faculty*: Jerry McMurtry, Karen E. Norum, Michael E. Tomlin, Martha C. Yopp.**

***Business Education Faculty*: Laura B. Holyoke, K. Allen Kitchel, Martha C. Yopp.**

***Counseling and School Psychology Faculty:* Ernest Biller, William T. Divane, Thomas N. Fairchild, Jerome H. Fischer, Sharon K. Fritz, William Gibson, Debra Goldfine, Martha A. Kitzrow, Nicole M. Konen, Patricia B. Kyle, James D. Morris, Charles R. Morrison, Dianne L. Phillips-Miller, Joan Pulakos, Steve A. Saladin, Thomas V. Trotter, Jerry L. Tuchscherer. Adjunct Faculty: W. Harold Godwin, Meredyth L. Goodwin, Patrick J. O'Toole, Bruce M. Pitman, Roxanne E. Schreiber.**

***Industrial Technology Education Faculty:* James M. Cassetto, Lee T. Ostrom, Jared Merrick.**

***Professional-Technical Education Faculty:* Ernest Biller, James M. Cassetto, Charles W. Gagel, Laura B. Holyoke, K. Allen Kitchel, Mark McCaslin, Jerry McMurtry, Jared Merrick, John Mundt, Douglas A. Pals, Mary J. Pickard, Lou E. Riesenberg, Jerry L. Tuchscherer, Martha C. Yopp.**

***Rehabilitation Counseling Faculty:* Jerome H. Fischer.**

***School Psychology Faculty:* Thomas N. Fairchild, Thomas V. Trotter.**

***Technology Education Faculty:* James M. Cassetto, Lee T. Ostrom, Jared Merrick.**

The professional degree majors in adult, counselor, and technology education provide both the opportunity and relevant skills to enable teachers, administrators, counselors, and business and industry personnel to work effectively with today's industries, youth, and adults. Students benefit from the realistic relationships between course work and occupational competencies required by educational institutions, business, industry, agriculture, and family life.

Preservice teaching degree majors are offered in: business education (B.S.Bus.Ed.), marketing education (B.S.Bus.Ed.), technology education (B.S.Ed.), and professional-technical education (B.S.Ed.) in the College of Education; and agricultural education (B.S.Ag.Ed.) and child, family, and consumer studies (family life education option) (B.S.F.C.S.) in the College of Agriculture. (See Admission to Teacher Education Programs.)

For all undergraduate teaching degrees listed below the student should consult an advisor concerning state requirements for the professional-technical education certificate.

Two nonteaching undergraduate majors are available in office administration (B.S.O.Ad.) and technology (B.S.Tech.) through the College of Education for students who wish to capitalize on their secretarial and office management skills or technical and professional skills in industry or business.

**Agricultural Education.** Graduates with this degree (B.S.Ag.Ed.) are qualified for a standard secondary teaching certificate and are qualified to teach secondary agricultural science and technology. Schools, government, and agribusiness agencies that seek persons with training in agriculture and education provide employment opportunities for graduates of this curriculum. (See Agricultural and Extension Education for program and course descriptions.)

**Business Education.** The business education major (B.S.Bus.Ed.) is for students whose primary interest is teaching business education at the secondary level. Students who seek careers in office administration and related office and business positions complete a degree in office administration (B.S.O.Ad.).

**Marketing Education.** This major (B.S.Bus.Ed.) is for students whose primary interest is in teaching marketing, merchandising, and management at the high-school or postsecondary level.

**Family Life Education.** Family life education (B.S.F.C.S.) is offered through the Margaret Ritchie School of Family and Consumer Sciences. (See Family and Consumer Sciences for program and course descriptions.) The program prepares students for teaching child, family, and consumer issues in the public schools, in community settings, or to business audiences. Graduates of the major include teachers in public and private institutions either at the secondary or postsecondary level as well as private agencies.

**Professional-Technical Education.** A degree in professional-technical education (B.S.Ed.) is designed primarily for teachers in area professional-technical schools and secondary trade and industry programs who do not hold degrees. It does not qualify one for teaching in a public K-12 system unless a person also holds a secondary endorsement or a professional-technical specialist certificate.

**Professional-Technical Certification.** In collaboration with the Idaho State Division of Professional-Technical Education, sequential inservice undergraduate professional-technical education degree courses, as well as selected graduate professional-technical courses, are offered each semester at area professional/technical schools located at Coeur d'Alene, Lewiston, Boise, and

Twin Falls.

**Technology Education.** The undergraduate program in technology includes two degree programs. One is the Bachelor of Science in Technology (B.S.Tech.), which prepares students for technical and professional careers in industry or business. The other (B.S.Ed.) is a degree with a major in technology education and provides opportunities for students to develop skills in several technical teaching areas and prepares them for certification as technology teachers in the secondary schools.

**Graduate Education/Counseling and School Psychology.** The counseling program offers course work at the master's level for individuals seeking preparation as counselors in school, community, and rehabilitation settings. In addition, the doctorate is available for those seeking an advanced counselor education program.

Specialist-level programs meet Idaho certification requirements in school psychology and advanced school counseling. All programs are designed to assist the student toward meeting the requirements for counselor licensure.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COPA), has accredited the following programs in the Counseling and School Psychology Program: community counseling (M.Ed., M.S.), school counseling (M.Ed., M.S.), and the counselor education and supervision emphasis in the Ed.D. and Ph.D. programs. The school counseling and school psychology programs are also accredited by the National Council for the Accreditation of Teacher Education (NCATE) and the National Association of State Directors of Teacher Education and Certification (NASDTEC). The school psychology program is also accredited by the National Association for School Psychology (NASP). The rehabilitation counseling graduate program is accredited by the Council on Rehabilitation Education (CORE). All programs afford the graduate the opportunity to take the National Board for Certified Counselor Examination (NBCC) and its subtests.

Counseling and Human Services is a field that prepares professionals to work with children, adolescents, and adults to enhance academic, social, emotional, vocational, and personal growth. Students are provided with theoretical knowledge bases as well as practical application of skills in carefully selected field placements.

*School Counseling*. The graduate program in school counseling (M.Ed., M.S., and Ed.S.Couns.-Hum.Serv.) may be used to meet state certification for school counseling (school and vocational). Graduates usually seek positions in K-12 schools, postsecondary institutions, vocational counseling programs (either school or agency), employment agencies, and career centers.

*Community Counseling*. The graduate degree program in community counseling (M.Ed., M.S., and Ed.S.Couns.-Hum.Serv.) offers degrees at the master's and education specialist levels. Graduates usually seek careers in private practice and agency counseling centers.

Curricular requirements in the school counseling and community/agency counseling programs include: Individual Appraisal, Techniques of Counseling, Vocational Counseling, Lifespan Development, Social/Cultural Foundations, Group Counseling, Diagnosis and Case Conceptualization, Practicum, and Internship.

*School Psychology*. The school psychology program offers the education specialist degree (Ed.S.Sch.Psych.) for those preparing to be school psychologists. Curricular requirements in the program include: course work in psychological foundations, educational foundations, interventions/problem solving, statistics/research methodologies, professional school psychology, practica, and internship.

*Rehabilitation Counseling*. The vocational rehabilitation counseling program has graduate degrees available at the master's and education specialist levels (M.Ed., M.S., and Ed.S.Couns.-Hum. Serv.). Curricular requirements in the major include: Principles and Practices of Rehabilitation; Psycho-social Aspects of Disability; Medical/Physical Aspects of Rehabilitation; Rehabilitation Case Management and Community Resources; Assessment in Vocational Rehabilitation; Vocational Placement and Assistive Technology; Professional Issues, Ethics, and Law in Rehabilitation; Practicum; and Internship. The program will afford the graduate the opportunity to take the Certified Rehabilitation Counselor (CRC) Examination. Graduates assume careers with vocational rehabilitation agencies, hospital rehabilitation centers, community rehabilitation programs, and as private rehabilitation practitioners.

*Counselor Education*. Doctoral level programs in education with an emphasis in counselor education prepare individuals for advanced clinical, administrative, and counselor education positions. Doctoral degrees, Doctor of Philosophy (Ph.D.) and Doctor of Education (Ed.D.), with a counseling major are offered to those seeking advanced graduate preparation beyond the education specialist.

**Graduate Education/Adult and Professional-Technical Education.** The graduate program is designed with flexibility to permit each student to pursue an individualized concentration in professional-technical and/or adult education. The graduate program offers students an opportunity to prepare for other responsibilities. Among the various career objectives a graduate student may choose are positions as curriculum coordinator, cooperative education coordinator, administrator of adult basic education program, human resource development specialist, work-based learning coordinator, supervisor of instruction, and administrator of professional-technical programs. In addition to seeking these local staff opportunities, many graduates of the professional-technical education program prepare for master-teacher assignments at the secondary level or as postsecondary (two-year college) instructors.

The graduate degrees of Master of Science (M.S.), Master of Education (M.Ed.), Education Specialist in Adult Education (Ed.S.Ad.Ed.), and Education Specialist in Professional-Technical Education (Ed.S.P.-T.Ed.) with emphasis in adult education, business education, industrial technology education, and professional-technical education are offered through the division.

Doctoral programs in the division with major emphasis in adult education and professional-technical education are offered under the major in "education."

A student with a baccalaureate degree from an accredited college or university with a major in one of the following related areas may apply for graduate study in professional-technical education: adult education, agricultural science and technology, business occupations, counseling, health occupations, family and consumer science, industrial technology, marketing education, technology (engineering), trade and industrial/technical education, special populations, or career development.

A student with a baccalaureate degree with a major in a nonrelated area must have work experience appropriate to a related area in order to apply for graduate study in professional-technical education and/or (1) certification by the Idaho State Division of Professional-Technical Education as a professional-technical teacher in Idaho, (2) baccalaureate degree in a recognized professional-technical field, (3) a baccalaureate degree, occupational experience, and current employment as a professional-technical teacher, or (4) a baccalaureate degree, occupational experience, and current work toward employment as a professional-technical teacher--with approval of the division's graduate committee.

*Adult Education.* A graduate degree in adult education is offered at the master's (M.Ed., M.S.), Education Specialist (Ed.S.Ad.Ed.), and doctoral (Ph.D., Ed.D. with a major in education) levels. The curriculum requires the following courses in the major: Foundations of Adult Education, The Adult Learner, Instructional Design and Curriculum Development, Strategies for Teaching Adults, Lifespan Development, and Communications Skills for Teachers of Adults. Graduates are prepared to accept teaching positions in postsecondary institutions, adult basic education programs, administration, human resource development, and private industry.

*Business Education*. A Master of Education (M.Ed.) degree is available in business education. The curriculum requires the following courses in the major: Principles and Philosophy of Professional-Technical Education; Teaching Strategies; Analysis, Curriculum, and Evaluation; Issues in Business or Marketing Education; Basic Business Subjects; and technology electives. Graduates of this program generally are employed as master teachers in secondary and postsecondary institutions.

*Industrial Technology Education*. Graduates of a Master of Science (M.S.) or a Master of Education (M.Ed.) program in industrial technology generally are employed in secondary and postsecondary teaching programs as master teachers or as mid-level managers and technical consultants in business and industry. The curricular requirements in the major include the following courses: Principles and Philosophy of Professional-Technical Education, Teaching Strategies, Analysis, Curriculum, and Evaluation, and Industrial Technology Education Seminar. Each master's student must demonstrate a proficiency in the five industrial technology cluster areas of power, energy, and transportation; communication; manufacturing; construction; and principles of technology.

*Professional-Technical Education*. Students may seek a Master of Science (M.S.), Master of Education (M.Ed.), Education Specialist (Ed.S.P.-T.Ed.), or doctoral (Ph.D. or Ed.D. with a major in education) degree in professional-technical education. Graduates are generally employed as administrators, master teachers, or program directors in educational institutions or business and industry. Curriculum requirements in the major field include: Principles and Philosophy of Professional-Technical Education, Teaching Strategies, and Analysis and Curriculum Development.

## Courses

See Part 6 for courses in Adult, Counselor, and Technology Education (ACTE), Adult Education (AdEd), Business Education (BuEd), Counseling and School Psychology (CASP), Industrial Technology Education (ITED), and Professional-Technical Education (PTE).

## Undergraduate Curricular Requirements

### BUSINESS EDUCATION (B.S.Bus.Ed.)

Students whose primary interest is in secretarial and clerical subjects and who wish to qualify for professional-technical certification elect this major. Consult the business education advisor concerning state requirements for the professional-technical education certificate.

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to “Admission to the Teacher Education Program” in the College of Education section in Part 4.

Requirements include the university requirements (see regulation J-3), Idaho Technology Competency Certification and the following courses:

BuEd 102 Typewriting II (2 cr)
BuEd 185 Business Computation Concepts (2 cr)
BuEd 211 Communication Skills for Workforce Development (2 cr)
BuEd 328 Computer Operating Systems for Technology (4 cr)
BuEd 395 Administrative Office Procedures (3 cr)
BuEd 415 Microcomputer Applications (3 cr)
BuEd 418 Teaching Consumer Economics (2 cr)
BuEd 419 Information Processing Management (3 cr)

BuEd 430 Supervising Business Professionals of America (2 cr)
BuEd 457 Transitioning to Work (2 cr)
BuEd 491-492 Teaching Business Education I-II (4-6 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
ACTE 444 Diverse Populations and Individual Differences (2 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2 cr)
ACTE 471 Practicum: Professional-Technical Education Teaching (10 cr)
BLaw 265 Legal Environment of Business (3 cr)
Bus 101 Introduction to Business Enterprises (3 cr)
Econ 201, 202 Principles of Economics (6 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development or ACTE 445 Proseminar in Professional-Technical Education (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Engl 313 Business Writing (3 cr)
FCS 448 Consumer Economic Issues (3 cr)
Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology (3 cr)
PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)
Accounting, business, or economics electives (6 cr)
Electives to total 128 credits.

## INDUSTRIAL TECHNOLOGY (B.S.Tech.)

Designed to prepare students for both technical and professional careers in industry and business, particularly for supervisory and other mid-management level positions.

Required course work includes the university requirements (see regulation J-3) and:

BLaw 265 Legal Environment of Business or ITED 443 Government Contract Law (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 370 Production/Operations Management or ME 410 Production Engineering or CE 482 Project Engineering (3 cr)
Bus 441 Labor Relations or ITED 446 Labor Law (3 cr)
Bus 456 Quality Management or ITED 434 Quality Assurance Organization and Management (3 cr)
BuEd/ITED 415 Microcomputer Applications (3 cr)
BuEd/ITED 460 Desktop Publishing (3 cr)
Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)
Engr 105 Engineering Graphics (2 cr)
Engl 317 Technical Writing (3 cr)
ITED 130 Basic Electronics (4 cr)
ITED 238 Digital Electronics or ITED 333 Computer Electronics (3 cr)
ITED 265 Computer Aided Drafting/Design (2 cr)
ITED 270, 370, 470 Technical Competence and/or ITED 490, 491, 492 Adv Technical Competence and/or approved technical electives (29 cr)
ITED 328 Computer Operating Systems for Technology (4 cr)
ITED 380 Computer Numerical Control Manufacturing (4 cr)
ITED 450 Industrial Safety (3 cr)
ITED 475 LAN Technology (4 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry or Math 160 Survey of Calculus or Math 170 Analytical Geometry and Calculus I (3-4 cr)
Phys 100 Fundamentals of Physics or Chem 112 Principles of Chemistry II (4 cr)
Phys 111, 112 General Physics I-II or Phys 211, 212 Engineering Physics I-II (8 cr)
Psyc 101 Introduction to Psychology (3 cr)
Stat 251 Principles of Statistics or 301 Probability and Statistics (3 cr)
Technical Specialization Block, see dept for course options (16 cr)
Electives to total 134 credits for the degree

The minimum number of credits for the degree is 134.

**Technical Specialist Blocks.** Moscow campus: manufacturing technology, computer electronics and industrial instrumentation technology, computer management technology, industrial generalist technology. Idaho Falls campus: industrial safety technology, quality technology, network and computer electronics, mechanical design technology, generalist, waste management.

## MARKETING EDUCATION (B.S.Bus.Ed.)

The marketing education major is for students who are interested in teaching marketing, merchandising, and management at the high-school or postsecondary level. Students electing this major should consult the marketing education advisor concerning state requirements for the professional-technical education certificate.

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section in Part 4.

Requirements include the university requirements (see regulation J-3), Idaho Technology Competency Certification and the following courses:

Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
ACTE 444 Diverse Populations and Individual Differences (2 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2 cr)
ACTE 471 Practicum: Professional-Technical Education Teaching (10 cr)
BLaw 265 Legal Environment of Business (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 321 Marketing (3 cr)
Bus 425 Retail Distribution Management (3 cr)
BuEd 415 Microcomputer Applications (3 cr)
BuEd 457 Transitioning to Work (3 cr)
BuEd 493 Teaching Marketing Education (3 cr)
BuEd 495 Supervising DECA Programs (2 cr)
BuEd 496 Directed Work Experience (3 cr)
Econ 201, 202 Principles of Economics (6 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development or ACTE 445 Proseminar in Professional-Technical Education (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology (3 cr)
PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)

And the completion of a 20-credit teaching minor (see Division of Teaching, Learning, and Leadership in Part 5) or the following:

**Additional requirements for a 60-credit concentration**:

Bus 323 Promotional Strategy (3 cr)
Bus 324 Buyer Behavior (3 cr)
BuEd 418 Teaching Consumer Economics (2 cr)
BuEd 496 Directed Work Experience (3-9 cr)
FCS 448 Consumer Economic Issues (3 cr)
Business or communication electives (approved by marketing ed teacher educator) (9 cr)

The minimum number of credits for the degree is 128.

## OFFICE ADMINISTRATION (B.S.O.Ad.)

This degree is for students whose primary interest is in office administration and related business and office technology positions. Required course work includes the university requirements (see regulation J-3) and:

BuEd 102 Typewriting II (2 cr)
BuEd 185 Business Computation Concepts (2 cr
BuEd 211 Communication Skills for Workforce Development (2 cr)
BuEd 328 Computer Operating Systems for Technology (4 cr)
BuEd 395 Administrative Office Procedures (4 cr)
BuEd 413 Administrative Office Management (3 cr)
BuEd 415 Microcomputer Applications (3 cr)
BuEd 419 Information Processing Management (3 cr)
BuEd 460 Desktop Publishing (3 cr)
BuEd 490 Records Management (3 cr)
BuEd 496 Directed Work Experience (3-9 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
BLaw 265 Legal Environment of Business (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 321 Marketing (3 cr)
Bus 412 Human Resource Management or Bus 418 Organization Theory (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)

Econ 201, 202 Principles of Economics (6 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Stat 150 Introduction to Statistics (3 cr)
Electives to complete 128 cr for the degree

## PROFESSIONAL-TECHNICAL EDUCATION (B.S.Ed.)

This degree is designed for those teachers in secondary trade and industrial programs who wish to teach in postsecondary professional-technical programs.

Required course work includes the university requirements (see regulation J-3) and:

PTE 270, 370, 470 Technical Competence (32 cr)
PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)
PTE 420 Evaluation in Professional-Technical Education (3 cr)
PTE 426 Instructional Design and Curriculum (3 cr)
PTE 450 Industrial Safety (3 cr)
PTE 464 Career Guidance or ACTE 460 Using Internet-Based Career Information in the Classroom (2-3 cr)
PTE 471 Practicum: Professional-Technical Education Teaching or EDTE 485 Secondary Internship (3-10 cr)
PTE 472 Professional-Technical Education Methods (3 cr)
ACTE 457 Transitioning to Work (3 cr)
Comm 101 Fundamentals of Public Speaking or 132 Oral Interpretation (2 cr)
Hist 111 or 112 Intro to U.S. Hist or PolS 101 Intro to Political Sc and American Govt (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
English or literature electives (6 cr)
Science-mathematics electives (12 cr)
Electives in general studies (to be selected from humanities, social sc, and natural sc) (4 cr)
Professional-technical electives (16-19 cr):
- PTE 200, 400 Seminar (3-6 cr)
- PTE 203, 403 Workshop (1-6 cr)
- PTE 204, 404 Special Topics (3-6 cr)
- PTE 299, 499 Directed Study (3-9 cr)
- PTE 306 Preservice for New Professional-Technical Teachers
- PTE 307 Inservice for New Professional-Technical Teachers
- PTE 418 Learning Styles
- ACTE 444 Diverse Populations and Individual Differences
- AdEd 473 Foundations of Adult Education
- Approved course in computer literacy (3 cr)

Electives approved by professional-technical teacher educator (11 cr)

PTE majors planning to qualify for the Idaho Secondary Teaching Certificate must include EDTE 485 or ACTE/PTE 471, Idaho Technology Competency Certification and the following courses:

ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development or ACTE 445 Proseminar in Professional-Technical Education (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
ED 468 Historical and Philosophical Foundations of Ed or PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to “Admission to the Teacher Education Program” in the College of Education section in Part 4.

The minimum number of credits for the degree is 128.

## TECHNOLOGY EDUCATION (B.S.Ed.)

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to “Admission to the Teacher Education Program” in the College of Education section in Part 4.

Prerequisite Skills Package (cannot be used as part of the major) (students may test out of the following classes; however, the classes are considered prerequisites to Technology Education):

- ITED 250 Manufacturing Technology Systems (4 cr)
- ITED 265 Computer Aided Drafting/Design (2 cr)

ASM 107 Beginning Welding (2 cr)

Requirements include the university requirements (see regulation J-3), Idaho Technology Competency Certification and the following courses:

ITED 110 Technology and Society (3 cr)
ITED 130 Basic Electronics (4 cr)
ITED 328 Computer Operating Systems for Technology (4 cr)
ITED 360 Communication Technology Systems (4 cr)
ITED 380 Computer Numerical Control Manufacturing (4 cr)
ITED 415 Microcomputer Applications (3 cr)
ITED 426 Instructional Design and Curriculum (3 cr)
ITED 429 Student Organizations (1 cr)
ITED 450 Industrial Safety (3 cr)
ITED 472 Industrial Technology Teaching Methods (3 cr)
ACTE 444 Diverse Populations and Individual Differences (2 cr)
ACTE 457 Transitioning to Work (3 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2-3 cr)
ACTE 471 Practicum: Professional-Technical Education Teaching (10 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development or ACTE 445 Proseminar in Professional-Technical Education (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Engr 105 Engineering Graphics (2 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology (3 cr)
PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)

Students planning to earn an Idaho Standard Teacher Certificate in *Technology Education* take the following courses:

ITED 120 Principles of Technology (4 cr)
ITED 218 Power, Energy, and Transportation Technology Systems (4 cr)
ITED 253 Advanced Manufacturing Systems Technology (4 cr)
ITED 280 Construction Technology Systems (4 cr)
And option A, B, or C below, or the courses taken by students planning to earn an Idaho Standard Teacher Certificate in Computer Applications below

Students planning to earn an Idaho Standard Teacher Certificate in *Computer Applications* take the following courses:

BuEd/ITED J419/J519 Information Processing Management (3 cr)
BuEd/ITED 460 Desktop Publishing (3 cr)
ITED 382 Computer Hardware Technology (3 cr)
ITED 444 Telecommunications (3 cr)
ITED 475 LAN Technology (4 cr)
ED 328 Introduction to Educational Technology (2 cr)
And option A, B, or C below, or the courses taken by students planning to earn an Idaho Standard Teacher Certificate in Technology Education above

And one of the following options:

A. GENERAL INDUSTRIAL TECHNOLOGY OPTION: 10 credits in approved ITED courses distributed throughout several technology areas.

B. TEACHING MINOR OPTION: 20-30 credit teaching minor to be selected from the list of "teaching majors and minors" in the Division of Teaching, Learning, and Leadership section in Part 5..

C. INDUSTRIAL TECHNOLOGY SPECIALIZATION OPTION: 10-20 additional credits in a specialized area of technology. Students may specialize in one of the following technology areas: electronics, manufacturing and construction, graphic communication, construction technology, general technology, computer technology, science technology, or math technology

The minimum number of credits for the degree is 128.

## Graduate Degree Programs

**Master of Education and Master of Science.** Master's and education specialist degree candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Adult, Counselor, and Technology Education. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Education Specialist.** Offered in adult education, counseling and human services, school psychology, and professional-technical

education.

**Doctor of Education and Doctor of Philosophy.** The Ed.D. and Ph.D. programs are designed for those persons who show promise in theory development and research, and who appear likely to provide leadership in the profession. The programs aim to develop a comprehensive understanding of the field and the ability to identify and resolve pertinent problems.

Division minimum requirements for the Doctor of Education (Ed.D.) degree are: 15 credits in research competency, including statistics and research design; practicum and field experience; 18 to 25 credits in dissertation; 18 to 20 credits in a cognate area; and 30 credits in a major area of competency.

Division minimum requirements for the Doctor of Philosophy (Ph.D.) degree are: 21 credits in research competency, including statistics and research design; practicum and field experience; 18 to 25 credits in dissertation; and 20 to 30 credits in a major area of competency.

# Aerospace Studies

Yoshio Smith, Head (UI Shoup Hall 83844-2005; phone 208/885-6129; or Washington State Univ. Kruegel Hall; phone 509/335-5598; http://www.wsu.edu:8080/~afrotc). *Faculty:* James Cole, Jennifer J. Cole, Bobby R. Ladd, Yoshio Smith.

The Air Force Reserve Officer Training Corps (ROTC) offers eligible students education and training that leads to a commission as a second lieutenant in the U.S. Air Force. Air Force ROTC students may major in any degree program offered at UI; they supplement their major curricula with the specialized aerospace studies courses to prepare for active commissioned service.

Four-Year Program (General Military Course and Professional Officer Course). A formal application is not required for students entering the four-year program. They may register for the program at the same time and in the same manner as they enroll in their other college courses. During their freshman and sophomore years, students enroll in the General Military Course (GMC), and there is NO MILITARY OBLIGATION. They then may compete for entry into the Professional Officer Course (POC), which is normally taken during the last two years of college. Selection into the POC is highly competitive and is based on qualification on an Air Force medical examination, a physical fitness test, scores achieved on the Air Force Officer Qualifying Test (AFOQT), successful completion of a paid four-week field training course at an Air Force base, and the recommendation of the professor of aerospace studies.

Two-Year Program (Professional Officer Course). The two-year program consists of the Professional Officer Course (POC), the last two years of the four-year program. It is designed to provide greater flexibility to meet the needs of the students desiring Air Force opportunities. The basic requirement is that applicants have at least two academic years remaining at either the undergraduate or graduate level, or a combination of both.

After being nominated by the professor of aerospace studies, applicants seeking enrollment in the two-year program are evaluated on scores achieved on the AFOQT, the Air Force medical examination, a physical fitness test, and a personal interview. Because of processing procedures, interested applicants should contact the Department of Aerospace Studies no later than November of the year prior to entering the program. Application should be made in writing or by a personal visit to the professor of aerospace studies, UI Shoup Hall or WSU Kruegel Hall. After successfully completing a paid six-week field training course at an Air Force base during the summer, applicants meeting all requirements may then enroll in the Professional Officer Course.

Air Force ROTC also offers financial assistance to selected students in the form of scholarships and subsistence allowances. The students compete for the scholarships through a national screening process. The Air Force offers 1- to 4-year scholarships that cover tuition, fees, and a book allowance, and also provide a $300-a-month subsistence allowance for each school year a student is on scholarship. Students interested in applying for scholarships should get in touch with this department. Nonscholarship students receive the $300-a-month subsistence allowance while in the POC.

Field Training. Air Force ROTC field training is offered during the summer months at selected Air Force bases throughout the U.S. Students in the four-year program participate in four weeks of field training, usually between their sophomore and junior years. Students applying for entry into the two-year program must successfully complete six weeks of field training before enrollment in the Professional Officer Course. The major areas of study in the four-week field training program include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions and Air Force environment, and physical training. The major areas of study included in the six-week field training program are essentially the same as those conducted at four-week field training and in the General Military Course including Leadership Laboratory.

Leadership Laboratory. Leadership Laboratory is taken an average of two hours a week throughout the student's enrollment in Air Force ROTC. Instruction is conducted within the framework of an organized cadet wing with a progression of experiences designed to develop each student's leadership potential. Leadership Laboratory involves a study of Air Force customs and courtesies, drill and ceremonies, career opportunities in the Air Force, and the life and work of an Air Force junior officer. Students develop their leadership potential in a practical, supervised laboratory, which typically includes field trips to Air Force installations throughout the U.S.

## Courses

See part 6 for courses in Aerospace Studies (Aero).

## Programs

The following programs are designed to provide students with a good military and leadership foundation so students completing them can serve as effective Air Force officers. They are not designed to be academic majors and thus no bachelor's degree is offered.

For a student to receive an Air Force commission, he or she must have completed either the Four-Year Program or the Two-Year Program. Prior-service students should consult the department to find out what course of study will be required for them.

**Four-Year Program**

Aero 101-102 The Air Force Today (4 cr)
Aero 201-202 The Air Force Way (4 cr)
Aero 291 Four-Week Field Training Course (2 cr)
Aero 311-312 Air Force Leadership and Management (8 cr)
Aero 411-412 National Security Affairs/Preparation for Active Duty (8 cr)

**Two-Year Program**

Aero 292 Six-Week Field Training Course (6 cr)
Aero 311-312 Air Force Leadership and Management (8 cr)
Aero 411-412 National Security Affairs/Preparation for Active Duty (8 cr)

# Academic Minor Requirements

## AEROSPACE STUDIES MINOR

Courses selected from the following (at least 12 credits must be in courses numbered 300 and above) (18):

Aero 101-102 The Air Force Today
Aero 201-202 The Air Force Way
Aero 292 Six-Week Field Training Course
Aero 311-312 Air Force Leadership and Management
Aero 411-412 National Security Affairs/Preparation for Active Duty

# Program in Aging Studies

**Virginia W. Junk, Coordinator (108C Mary Hall Niccolls Bldg. 83844-3183; phone 208/885-7264; gjunk@uidaho.edu, http://www.uidaho.edu/fcs/ageminor).** ***Faculty:*** **Ginna M. Babcock, Stephen B. Banks, Jess D. Caudillo, Annette L. Folwell, Virginia W. Junk, Cynthia J. Schmiege, Paul G. Windley.**

The Aging Studies Minor connects different knowledge bases across many disciplines. The program offers an interdisciplinary approach that uses the concept of growing older to examine such cultural variables as class, ethnicity, nationality, gender, and developmental processes. The courses encourage students to develop critical thinking skills that will empower them as active learners and that will lead them to having a better understanding of what it means to grow old in a new age. Field and applied experiences will enable students to demonstrate new knowledge and to refine their competence in working with real life community and family problems. Fields such as mass communications, recreation, criminology, economics, health services, social work, law, psychology, education, and family and consumer studies are increasingly offering special career opportunities to students with a background in aging studies.

Academic units that cooperate to offer this minor include the School of Family and Consumer Sciences, the Division of Health, Physical Education, Recreation and Dance, and the Departments of Architecture, Psychology, and Sociology/Anthropology/Justice Studies.

## Academic Minor Requirements

### AGING STUDIES MINOR

Psyc 419 Adult Development and Aging (3 cr)
Rec 365 Leisure and the Aging Process or Arch 412 Environment and Aging or FCS 428 Housing America's Families (3 cr)
Soc 431 Personal and Social Issues in Aging or FCS 306 Gerontology (3 cr)
Additional courses selected from the following (if not taken above) or other courses with at least 50% aging content as approved by a co-coordinator or an advisor (9-10 cr):

- Arch 412 Environment and Aging
- Arch 498 Internship (3-6 cr)
- Econ 450 The Economics of Health Care
- FCS 306 Gerontology
- FCS 346 Personal and Family Finance and Management (1-2 cr)
- FCS 404 ST:Adult Development (3 cr)
- FCS C410 Growing Old in a New Age
- FCS 428 Housing America's Families
- FCS 498 Internship (3-6 cr)
- H&S 150 Wellness Lifestyles
- H&S 498 Internship in Health/Safety (3-6 cr)
- PEP 201 Fitness Activities and Concepts
- PEP 498 Internship in Physical Education (3-6 cr)
- Rec 365 Leisure and the Aging Process
- Rec 498 Internship in Recreation (3-6 cr)
- Soc 396 Social Work with the Aging
- Soc 431 Personal and Social Issues in Aging
- Soc 498 Internship (3-6 cr)

# Department of Agricultural and Extension Education

**Lou E. Riesenberg, Dept. Head (Agricultural and Extension Education Bldg., P.O. Box 442040, 1134 West 6th, 83844-2040; phone 208/885-6358; e-mail lriesenb@uidaho.edu; http://www.aee.uidaho.edu).** ***Faculty:*** **John P. Mundt, Douglas A. Pals, Lou E. Riesenberg.** ***Faculty Emeritus:*** **Maurice E. Johnson.** ***Adjunct Faculty:*** **Robert J. Haggarty.** ***Affiliate Faculty:*** **Wayne L. Fanno.**

The mission of the Department of Agricultural and Extension Education includes teaching, research, and service. The specific objectives of the department are: (1) to prepare educators for employment in teaching agriculture and extension programs; (2) to provide service and direction to FFA in Idaho; (3) to provide an opportunity for graduate study in the areas of agricultural and extension education; (4) to assist in providing inservice education for agricultural educators in Idaho; (5) to provide service to related agencies and organizations for the support of education and the development of human resources; (6) to conduct quality research in agricultural and extension education; (7) to assist in maintaining viable agricultural education programs; and (8) to assist in the development of information and instructional materials for the support of agricultural educators and extension personnel.

Courses in animal science, agricultural economics, agricultural mechanics, entomological science, plant science, horticulture, and soil science will prepare graduates to teach these areas as secondary agriculture instructors and develop educational programs as county extension faculty. The agricultural education curriculum is approved by the State Board for Professional-Technical Education. Graduates who have completed a minimum of 28 credits in agricultural education and who meet the state certification requirements for a standard secondary teaching certificate are qualified to teach secondary agriculture. Students must be admitted to the Teacher Education Program, which requires a grade-point average of at least 2.75, before being allowed to enroll in upper-division teacher education courses and participate in student teaching. In addition, government and agribusiness agencies that seek persons with training in agriculture and education provide employment opportunities for graduates of this curriculum. Courses provide students an opportunity to develop employment opportunities in teaching agriculture, cooperative extension, and agribusiness occupations.

The department provides opportunities for professional growth and development to agricultural educators through a planned program of graduate study. The pursuit of an M.S. degree allows for the development of problem-solving skills through scientific investigation of appropriate research topics. Graduate work in agricultural and extension education is offered with the opportunity for students to elect options in agricultural sciences, extension education, professional-technical teacher education, international agricultural education, or other areas that parallel their career goals. Because of the diversity of research efforts by departmental faculty members, a graduate student has a wide variety of specializations from which to choose a thesis topic. Students with this degree are well prepared to move into a job market or to pursue a Ph.D. program at another institution.

Admission to a graduate program requires an undergraduate degree with a major in agricultural education or a closely related field. The department may require the Graduate Record Examination if there is insufficient information available to indicate that the student will be successful in graduate work.

The department welcomes inquiries about its programs and suggests that anyone interested in possible pursuit of a degree in agricultural and extension education should contact the department (telephone 208/885-6358).

## Courses

See Part 6 for courses in Agricultural Education (AgEd) and Agricultural Science and Technology (Ag).

## Undergraduate Curricular Requirements

### AGRICULTURAL EDUCATION (B.S.Ag.Ed.)

Required course work includes the university requirements (see regulation J-3) and one of the following options:

**A. TEACHING OPTION**

The following option is approved by the State Board of Professional-Technical Education for the preparation of high school agriculture instructors. Graduates who have completed at least 28 credits in agricultural education, and who meet the state certification requirements for a Standard Secondary Teaching Certificate, are eligible to teach secondary agricultural science and technology in Idaho. In addition, government and business agencies and the Cooperative Extension System that seek persons with education in both agriculture and education provide employment opportunities for graduates of this curriculum.

AgEd 180 Introduction to Agricultural Education (1 cr)
AgEd 351 Principles and Philosophy of Professional-Technical Education (3 cr)
AgEd 358 Supervising FFA and SAE Programs (2 cr)
AgEd 452 Methods of Teaching Agriculture (3 cr)

AgEd 453 Program Planning in Secondary and Adult Ag Education (3 cr)
AgEd 454 Facilities Organization and Management (2 cr)
AgEd 460 Practicum: Secondary School Teaching in Agriculture (10 cr)
AgEd 461 Student Teaching Portfolio (2 cr)
AgEd 470 Proseminar in Agricultural Education (2 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2 cr)
ASM 107 Beginning Welding (2 cr)
ASM 202 Agricultural Shop Practices (2 cr)
ASM 210 Small Engines (2 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Engl 313 Business Writing or Engl 317 Technical Writing or Engl 207 Persuasive Writing or Engl 209 Inquiry-Based Writing (3 cr)
Math 130 Finite Math, Math 143 Pre-calculus Algebra & Analytical Geometry, Math 160 Survey of Calculus, or Math 170 Analytical Geometry & Calculus I (3-4 cr)
Computer applications course or Idaho Technology Certification (3 cr)
Ag electives, incl a minimum of 6 cr in ag econ, 6 cr in animal sc, 6 cr in plant sc, 3 cr in horticulture, and 4 cr in soils (40 cr)
Natural and applied science electives, incl 4 cr in chem and Biol 112 (16 cr)
Humanities and social sc electives, incl Econ 202 and Psyc 101 (14 cr)
Electives to total 132 cr for the degree

**B. NONTEACHING OPTION**

The non-teaching option is designed for students who desire a career in non-formal instruction, human resources development, and training in the food, fiber, and natural resource system. Graduates of this program will have a strong foundation in adult education, communications, and presentation and communications skills.

Agricultural education electives chosen from the following (20 cr):
- AgEd 180 Introduction to Agricultural Education (1 cr)
- AgEd 181 Introduction to Extension Education (1 cr)
- AgEd 252 Developing Organizations (1 cr)
- AgEd 253 Parliamentary Procedure (1 cr)
- AgEd 306 Exploring International Agriculture (2 cr)
- AgEd 448 Principles and Practices of Extension Education (3 cr)
- AgEd 450 Developing Leaders (2 cr)
- AgEd 451 Communicating in Agriculture (2 cr)
- AgEd 452 Methods of Teaching Agriculture (3 cr)
- AgEd 459 Coop Extension Practicum (max 9 cr) or 498 Internship (max 10 cr)

Adult education electives chosen from the following (6 cr):
- AdEd 418 Learning Styles (3 cr)
- AdEd 428 Program Development in Adult Education (3 cr)
- AdEd 473 Foundations of Adult Education (3 cr)
- AdEd 474 The Adult Learner (3 cr)
- AdEd 476 Communication Skills for Teachers of Adults (3 cr)

Communications electives chosen from the following (6 cr):
- Comm 235 Organizational Communication (3 cr)
- Comm 284 Experiences in Visual Thinking (3 cr)
- Comm 332 Communication and the Small Group (3 cr)
- Comm 333 Interviewing (3 cr)
- Comm 422 Science Communication (3 cr)
- Comm 425 Feature Article Writing (3 cr)

Business and accounting electives chosen from the following (6 cr):
- Acct 201 Introduction to Financial Accounting (3 cr)
- Bus 311 Introduction to Management (3 cr)
- Bus 321 Marketing (3 cr)
- BLaw 265 Legal Environment of Business (3 cr)

Comm 101 Fundamentals of Public Speaking (2 cr)
Comm 431 Professional Presentation Techniques (3 cr)
Engl 313 Business Writing (3 cr)
Math 130 Finite Math, Math 143 Pre-calculus Algebra & Analytical Geometry, Math 160 Survey of Calculus, or Math 170 Analytical Geometry & Calculus I (3-4 cr)
Computer applications course, or Idaho Technology Certification, or equivalent (3 cr)
Natural and applied science electives (16 cr)
Humanities and social science electives (14 cr)
Technical subject matter courses (including courses from any of the following instruction areas: agriculture, agricultural economics, agricultural systems management, animal and veterinary science, family and consumer sciences; plant, soil, and entomological sciences; food science and toxicology). A maximum of 8 cr of foreign language can be completed in lieu of 8 credits of technical subject matter courses with departmental approval. (36 cr)
Electives to total 128 cr for the degree

## AGRICULTURAL SCIENCE AND TECHNOLOGY (B.S.Ag.Sc.Tech.)

The agricultural science and technology major is designed for students interested in a broad education with emphasis on agriculture. The curriculum's flexibility enables students to prepare for careers in general farming/ranching or entry-level positions in agricultural industry and agribusiness. Students who have not decided on a major in agriculture may enroll in this curriculum and take courses in a number of departments to decide on a departmental major. Those who start in this curriculum will be informed of the requirements in other majors and plan course selections to avoid loss of time if they transfer to another major. Note: No student may become a candidate for the B.S.Ag.Sc.Tech. degree who has already earned a degree in the College of Agriculture or who is a candidate for another degree offered by the college.

Required course work includes the university requirements (see regulation J-3) and:

AgEc 278 Principles of Farm and Ranch Management (4 cr)
AgEc 289 Agricultural Markets and Prices (3 cr)
AgEc 356 Ag Programs and Policies or 361 Farm and Natural Resource Appraisal (3 cr)
AgEc 391 Agribusiness Management (3 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Chem 101 Intro to Chemistry I or 111 Principles of Chemistry (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 207 Persuasive Writing or Engl 209 Inquiry-Based Writing or Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Math 130 Finite Math, Math 143 Pre-calculus Algebra and Analytic Geometry, Math 160 Survey of Calculus, or Math 170 Analytical Geometry & Calculus I (3-4 cr)
MMBB 154, 155 Intro Biology of Bacteria and Viruses or MMBB 250 General Microbiology (4-5 cr)
Phys 100 Fundamentals of Physics or Phys 111 General Physics I or Chem 112 Principles of Chemistry II (4 cr)
Stat 150 Intro to Statistics or 251 Principles of Statistics (3 cr)
Computer applications course, or Idaho Technology Certification, or equivalent
Humanities and social sciences electives, including Econ 202 (14 cr)
Agricultural science and technology courses chosen from at least three of the following areas (30 cr):

- **Agricultural Education** (minimum of two courses) (4-5 cr)
  - AgEd 306 Exploring International Agriculture
  - AgEd 359 Developing 4-H Youth Programs
  - AgEd 448 Principles and Practices of Extension Education
  - AgEd 450 Developing Leaders
  - AgEd 451 Communicating in Agriculture
- **Agricultural Systems Management** (minimum of two courses) (5-6 cr)
  - ASM 305 Agricultural Machinery Systems
  - ASM 315 Irrigation Systems and Water Management*
  - ASM 331 Electric Power Systems for Agriculture
  - ASM 412 Agricultural Safety and Health
- **Animal Science** (minimum of two courses, one 300-level and one 400-level) (6-7 cr)
  - AVS 330 Genetics of Farm Animals *
  - AVS 363 Animal Products for Human Consumption
  - AVS 371 Anatomy and Physiology
  - AVS 472 Dairy Cattle Management*
  - AVS 474 Beef Cattle Science*
  - AVS 476 Sheep Science *
  - AVS 478 Swine Production*
- **Crop Production/Management** (minimum of three courses) (9 cr)
  - Ent 322 Economic Entomology
  - PlSc 338 Weed Control*
  - PlSc 405 Plant Pathology*
  - PlSc 407 Field Crop Production
  - Soil 438 Pesticides in the Environment*
  - Soil 446 Soil Fertility*

Additional agricultural science/technical electives (7 cr)
Electives to total 132 cr for the degree

*Course requires additional prerequisites not listed.

# Academic Minor Requirements

## AGRICULTURAL EXTENSION EDUCATION MINOR

AgEd 180 Introduction to Agricultural Education (1 cr)
AgEd 181 Introduction to Extension Education (1 cr)
AgEd 359 Developing 4-H Youth Programs (2 cr)
AgEd 448 Principles and Practices of Extension Education (3 cr)
AgEd 452 Methods of Teaching Agriculture (3 cr)
AgEd 459 Cooperative Extension Practicum (9 cr)

# Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Agricultural and Extension Education. See the College of Graduate Studies section of part 4 for the general requirements applicable to the M.S. degree.

Both thesis and nonthesis options are offered. The M.S. (nonthesis) is a terminal program designed to provide a broader preparation than the M.S. with thesis. Of the minimum of 30 credits required under the nonthesis option, at least 18 must be in courses at the 500s level and the remainder may include 400s level courses in the majors and 300s and 400s level courses in supporting areas. A professional paper is optional at the discretion of the candidate's supervisory committee. A comprehensive examination is required which may be written and/or oral.

# Department of Agricultural Economics And Rural Sociology

**Larry W. Van Tassell, Dept. Head (39A Iddings Wing, Ag. Sc. Bldg. 83844-2334; phone 208/885-6264; e-mail larryv@uidaho.edu).** ***Faculty:*** **Ahmed A. Araji, Robert D. Carver, Stephen C. Cooke, Stephen Devadoss, John C. Foltz, C. Wilson Gray, Joseph F. Guenthner, Joel R. Hamilton, Lorie L. Higgins, James R. Jones, LeRoy D. Luft, Larry D. Makus, Christopher S. McIntosh, Neil L. Meyer, James R. Nelson, Paul E. Patterson, Neil R. Rimbey, R. Garth Taylor, Larry W. Van Tassell, David J. Walker, J. D. Wulfhorst.**

Agricultural economics is an applied branch of economics. It is a social science that deals with economic problems in agriculture, the food industry, rural communities, and the use and conservation of our natural resources. Economic principles and theories are used to determine maximum economic efficiency in the production and marketing of agricultural commodities and in the use of natural resources.

The agricultural economics program prepares students to address problems faced by farmers and ranchers, agricultural marketing and supply companies, natural resource agencies, and rural communities. The department offers the degree of Bachelor of Science in Agricultural Economics with majors in agribusiness, agricultural economics, and natural resources and rural development. Areas of study within the majors include agricultural finance, agricultural policy, marketing, farm and ranch management, rural community development, international trade and development, economic use of natural resources, and management of agribusiness firms.

The agribusiness major prepares students in the management functions of farms, ranches, and businesses involved with the production and marketing of farm commodities and farm production inputs. The agricultural economics major prepares students to become professional economists for commercial agricultural firms and governmental agencies or to pursue advanced degrees in this field before entering the profession. Students completing the natural resources and rural development major are prepared to enter private industry and public agencies that deal with economic analysis of natural resource use and rural development problems.

Graduate training in agricultural economics encompasses commercial agriculture, natural resources, and rural development economics. Agricultural development and international trade are also emphasized.

The commercial agriculture area includes the economics of production and distribution, agribusiness management, and agricultural policy. Natural resource economics involves the evaluation of alternative uses of such resources as land (including resources obtained from land), air, and water. Rural development encompasses the economics of off-farm migration, rural education and services, community development, rural taxation, and low income and employment problems.

Students initiating graduate work in agricultural economics should have a background in economics and quantitative methods. The following specific course areas are recommended: economic principles, six credits; intermediate microeconomics, three credits; statistics, three credits; mathematics, through introductory calculus; applied economics and/or agricultural economics, nine credits. Individual graduate programs are tailored to allow students to take courses and develop thesis proposals in line with their professional interests.

The department welcomes inquiries about its program and suggests that anyone interested in possible pursuit of a degree in agricultural economics should contact the department (telephone 208/885-6264) or visit the website at http://www.uidaho.edu/ag/agecon.

## Courses

See part 6 for courses in Agricultural Economics (AgEc).

## Undergraduate Curricular Requirements

The agricultural economics area has three programs designed to prepare students for careers in the agricultural economics profession. The agribusiness major provides students with training related to management, finance, and marketing in the agribusiness sector. The agricultural economics major provides students with the theory behind decisions concerning agricultural production, marketing, resource use, pricing, and policy. The natural resources and rural development major provides understanding of the economics of pricing, public policy, and management of natural resources and community and human resources in rural society. Students in this major may elect courses in supporting fields for a focus in natural resource economics or in rural development economics. Each of these majors prepares students to pursue advanced degrees if they choose.

### CORE COURSES FOR B.S.AG.ECON.

AgEc 101 Agricultural Economics and Agribusiness (3 cr)
AgEc 278 Principles of Farm and Ranch Management (4 cr)

AgEc 356 Agricultural Programs and Policies (3 cr)
Biol 100 Intro to Biology or 201 Intro to Life Sciences or MMBB 250 General Microbiology (4-5 cr)
Chem 101 Introduction to Chemistry I or 111 Principles of Chemistry I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
CS 112 Introduction to Problem Solving and Programming or ASM 240 Computer Applications in Biological Systems (3 cr)
Econ 201, 202 Principles of Economics (6 cr)
Econ 352 Intermediate Microeconomic Analysis (3 cr)
Engl 317 Technical Writing (agribusiness majors may substitute Engl 313) (3 cr)
Stat 251 Principles of Statistics (3 cr)
Humanities and social sciences (at least 6 cr of each) (14 cr)

## AGRICULTURAL ECONOMICS (B.S.Ag.Econ.)

Required course work includes the university requirements (see regulation J-3), the agricultural economics core, and:

AgEc 289 Agricultural Markets and Prices (3 cr)
AgEc 453 Agricultural Price Analysis (3 cr)
AgEc 481 Agricultural Markets in a Global Economy (3 cr)
AgEc 493 Agricultural Production Economics (3 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Math 170 Analytic Geometry and Calculus I (4 cr)
Math, stat, or CS electives above the specific requirements (3-4 cr)
Agricultural economics electives (3 cr)
Economics electives (6 cr)
Technical agriculture electives (12 cr)
Electives to total 128 cr for the degree

## AGRIBUSINESS (B.S.Ag.Econ.)

Required course work includes the university requirements (see regulation J-3), the agricultural economics core, and:

AgEc 289 Agricultural Markets and Prices (3 cr)
AgEc 391 Agribusiness Management (3 cr)
AgEc 394 Analytical Techniques in Agribusiness and Economics (3 cr)
Two of the following courses (6 cr):
- AgEc 453 Agricultural Price Analysis
- AgEc 467 Economics of Rural Community Development
- AgEc 481 Agricultural Markets in a Global Economy
- AgEc 493 Agricultural Production Economics

Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
Acct 381 Accounting for Managers and Investors (3 cr)
BLaw 265 Legal Environment of Business (3 cr)
Bus 413 Organizational Behavior (3 cr)
Math 160 Survey of Calculus or 170 Analytic Geom and Calc I (4 cr)
Agricultural economics electives (3 cr)
Ag economics, economics, business, or accounting electives (3 cr)
Technical agriculture electives (12 cr)
Electives to total 128 cr for the degree

## NATURAL RESOURCES AND RURAL DEVELOPMENT (B.S.Ag.Econ.)

Required course work includes the university requirements (see regulation J-3), the agricultural economics core, and:

AgEc 451 Land and Natural Resource Econ or 467 Econ of Rural Community Dev (3 cr)
AgEc 493 Agricultural Production Economics (3 cr)
Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Econ 385 Environmental Economics (3 cr)
Econ 430 Regional/Urban Economics (3 cr)
Math 170 Analytic Geometry and Calculus I (4 cr)
PolS 275 American State and Local Government (3 cr)
Agricultural economics electives (select from AgEc 289, 332, 361, 394, 451, and 467) (9 cr)
Supporting field electives (see list in dept office) (18 cr)
Electives to total 128 cr for the degree

# Academic Minor Requirements

## AGRICULTURAL ECONOMICS MINOR

AgEc 101 Agricultural Economics and Agribusiness (3 cr)
AgEc 278 Principles of Farm and Ranch Management (4 cr)
AgEc 289 Agricultural Markets and Prices (3 cr)
AgEc 332 Econ of Ag Development or 356 Ag Programs and Policies (3 cr)
Two of the following courses (6 cr):
- AgEc 453 Agricultural Price Analysis
- AgEc 481 Agricultural Markets in a Global Economy
- AgEc 493 Agricultural Production Economics

## AGRIBUSINESS MINOR

AgEc 101 Agricultural Economics and Agribusiness (3 cr)
AgEc 278 Principles of Farm and Ranch Management (4 cr)
AgEc 289 Agricultural Markets and Prices (3 cr)
AgEc 394 Analytical Techniques in Agribusiness and Economics or 453 Ag Price Analysis or 481 Ag Markets in a Global Economy (3 cr)
Two of the following courses (6 cr):
- AgEc 356 Agricultural Programs and Policies
- AgEc 361 Farm and Natural Resource Appraisal
- AgEc 391 Agribusiness Management

## NATURAL RESOURCE ECONOMICS AND COMMUNITY DEVELOPMENT MINOR

AgEc 101 Agricultural Economics and Agribusiness (3 cr)
AgEc 278 Principles of Farm and Ranch Management (4 cr)
AgEc 356 Agricultural Programs and Policies (3 cr)
AgEc 451 Land and Natural Resource Econ or 467 Econ of Rural Community Dev (3 cr)
Two of the following courses (6 cr):
- AgEc 332 Economics of Agricultural Development
- AgEc 361 Farm and Natural Resource Appraisal
- AgEc 383 Economics for Natural Resource Managers

# Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Agricultural Economics and Rural Sociology. See the College of Graduate Studies section of part 4 for the applicable general requirements.

The M.S. program in agricultural economics is designed to prepare students for management, research, and policy positions in the public and private sectors of the economy, and for further graduate study. Specific departmental requirements for the thesis option include 24 credits of course work including the following: AgEc 507; AgEc 509; AgEc 510; AgEc 525; and two courses selected from AgEc 528, AgEc 524, and AgEc 551. In addition to the 24 credits of course work, six thesis credits (AgEc 500) are normally used to complete the total of 30 credits required by the College of Graduate Studies. Students may take a nonthesis option M.S. degree. Under this option a student will take a minimum of 27 credits of course work including departmental course requirements. In addition, a three-credit paper will be written and presented by the student addressing a topic determined jointly by the student and the student's graduate committee. This option is directed at students not receiving financial support from research funds.

# Program in American Indian Studies

**Rodney P. Frey, Acting Director (116 Phinney Hall 83844-1110; phone 208/885-6268; rfrey@uidaho.edu; http://www.uidaho.edu/~rfrey/indianminor.htm).** ***Faculty:*** **Dennis C. Colson, Rodney P. Frey, Georgia Johnson, R. Lee Sappington, Debbie A. Storrs, Mark S. Warner.** ***Affiliate Tribal Teacher:*** **D'Lisa D. Pinkham**

The American Indian Studies Program is based on the following objectives: (1) *recruitment and retention*--enhance the recruitment and retention of Indian students, as well as other students of ethnic heritage, attending and graduating from UI; (2) i*ntercultural communication*--provide an opportunity for face-to-face Indian/non-Indian exchange of ideas, perceptions, and misperceptions about Indian and Euro-American culture, including a meaningful context for intercultural communications and understanding, and solution of problems of bias and stereotyping; (3) *cultural appreciation*--foster a better understanding of and appreciation for the vitality, breadth, depth, and rich diversity of components of contemporary Indian cultures (e.g., arts, economics, literature, government, and social and religious life), as well as their histories; (4) *rigorous curriculum with an interdisciplinary approach*--enable students to acquire the knowledge, critical methods, and research skills of the academic fields that comprise the minor, including but not limited to anthropology, English, history, sociology, and teacher education; (5) *application*--provide an Indian pedagogy and knowledge base, i.e., an Indian perspective, that would complement and be integrated with students' other academic fields of study (e.g., business, education, engineering, forestry and natural resources, health care, humanities, or social sciences), better preparing students with the skills and expertise to address and successfully meet the various issues and challenges faced in Indian communities; (6) *collaboration*--build partnership relationships between UI and regional tribes (Idaho and adjacent western states), especially the Coeur d'Alene and Nez Perce Tribes, improving communications, educational delivery, the sharing of expertise, and ability to address common concerns and problems; (7) *institutional growth*--advance the concerns and issues faced in Indian communities, as well as an Indian pedagogical and knowledge perspective within the university and academic communities; and (8) *inclusivity*--serve both Indian and non-Indian students and communities alike.

## Courses

See Part 6 for courses in American Indian Studies (AIST).

## Academic Minor Requirements

### AMERICAN INDIAN STUDIES MINOR

AIST 401 Contemporary American Indian Issues (3 cr)
AmSt 201 Introduction to Ethnic Studies (3 cr)
Anth 329 North American Indians (3 cr)
Engl 484 American Indian Literature (3 cr)
Hist 431 History of Indian-White Relations (3 cr)
Elective courses selected from the following (6 cr):
- AIST 404 Special Topics (3 cr)
- AIST 495 Practicum (cr arr)
- AIST 498 Internship (cr arr)
- AIST 499 Directed Study (cr arr)
- Anth 422 Plateau Indians (3 cr)
- Anth 436 North American Prehistory (3 cr)
- Anth 443 Plateau Prehistory (3 cr)
- EDTE 404 ST:American Indian Education (3 cr)
- Hist 313 Red, White, and Black: The Peopling of Early America (3 cr)
- Hist 404 ST:The Nez Perce: Then and Now (3 cr)
- NezP 101-102 Elementary Nez Perce I, II (8 cr)
- Soc/Anth 322 Racial and Ethnic Relations (3 cr)

# Program in American Studies

**Walter A. Hesford, Coordinator (121 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6941); Sheila O'Brien and Mary H. DuPree, Co-coordinators.** ***Faculty:*** **Katherine G. Aiken, Anna Banks, David S. Barber, Donald W. Crowley, Mary H. DuPree, Rodney P. Frey, Shaikh M. Ghazanfar, Dale T. Graden, H. Lynne Haagensen, Sandra Haarsager, Patricia Hart, Walter A. Hesford, Eric L. Jensen, Harley E. Johansen, Georgia Johnson, William R. Lund, John A. Mihelich, Sheila O'Brien, D. Nels Reese, Patricia Riley, Debbie A. Storrs, William R. Swagerty, Margrit von Braun, Mark S. Warner, Dennis D. West, Gary Williams.**

## Courses

See Part 6 for courses in American Studies (AmSt).

## Undergraduate Curricular Requirements

### AMERICAN STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), general L&S requirements for the B.A. degree, and:

1. Nine credits in courses offered specifically for students in the American Studies program, including AmSt 301, Studies in American Culture (normally, one course each semester will be offered--see advisor); and

2. Completion of one of the following major areas of emphasis:

**A. LITERATURE EMPHASIS**

Engl 343-344 Survey of American Literature (6 cr)
Two courses in English literature (6 cr)
Courses selected from the following list (15 cr):
- Engl 380 Introduction to U.S. Ethnic Literatures
- Engl 427 American Fiction, 1914-1945
- Engl 429 Contemporary Fiction
- Engl 439 Modern English and American Drama
- Engl 441 Introduction to the Study of Language
- Engl 470 American Literature to 1830
- Engl 471 American Literature, 1830-1865
- Engl 473 Literature of the American West
- Engl 474 American Literature, 1865-1914
- Engl 480 Ethnic and Minority Literature
- Engl 483 African American Literature
- Engl 484 American Indian Literature

Courses in history and social science, incl at least 6 cr in each (selected from courses listed under the social sc emphasis and from upper-div courses listed under the history emphasis) (18 cr)

**B. HISTORY EMPHASIS**

Hist 101-102 History of Civilization (6 cr)
Hist 111-112 Introduction to U.S. History (6 cr)
Five courses selected from the following list (15 cr):
- Art 302 History of Art: 20th Century
- Comm 384 History of American Film
- Hist 313 Red, White and Black: The Peopling of Early North America
- Hist 315 Comparative African-American Cultures
- Hist 411 Colonial North America, 1492-1763
- Hist 412 Revolutionary North America and Early National Period, 1763-1828
- Hist 415 Civil War and Reconstruction, 1828-1877
- Hist 417 United States, 1900-1945
- Hist 418 Recent America, 1945-Present
- Hist 420 History of Women in American Society
- Hist 423 Idaho and the Pacific Northwest
- Hist 424 American Environmental History
- Hist 428 History of the American West
- Hist 431 History of Indian-White Relations
- Hist 441 Comparative Slavery and Emancipation in the Atlantic World
- MusH 440 Studies in American Music

Courses in literature and social science, incl at least 6 cr in each (selected from courses listed under the social sc emphasis and the following lit courses) (18 cr):
Engl 343-344 Survey of American Literature
Engl 427 American Fiction, 1914-1945
Engl 470 American Literature to 1830
Engl 471 American Literature, 1830-1865
Engl 473 Literature of the American West
Engl 474 American Literature, 1865-1914
Engl 483 African American Literature
Engl 484 American Indian Literature

**C. SOCIAL SCIENCE EMPHASIS**

Anth 329 North American Indians or Hist 431 Hist of Indian-White Relations (3 cr)
Econ 201, 202 Principles of Econ or 272 Foundations of Econ Analysis (4-6 cr)
Geog 240 Economic Geography (3 cr)
PolS 235 Political Research Methods and Approaches (3 cr)
Soc 230 Social Problems (3 cr)
Soc 322 Racial and Ethnic Relations (3 cr)
Stat 251 Principles of Statistics (3 cr)
Courses selected from the following list (at least 9 cr must be upper division) (12 cr):
AgEc 467 Economics of Rural Community Development
AmSt 201 Introduction to Ethnic Studies
Anth 100 Introduction to Anthropology
Anth 422 Plateau Indians
Anth 431 Historical Archaeology
Anth 436 North American Prehistory
Anth 443 Plateau Prehistory
Arch 483 Urban Theory and Issues
Arch 486 American Architecture
Comm 111 Introduction to Communication Studies
Comm 384 History of American Film
Comm 386 Documentary Film/Television
Comm 444 Communication and Public Opinion
Comm 445 History of Mass Communication
Dan 421 Dance History
Econ 345 American Economic Development
Econ 385 Environmental Economics
Econ 407 Public Finance
Econ 408 State and Local Government Finance
Econ 441 Labor Economics
Geog 165 Human Geography
Geog 330 Urban Geography
Geog 360 Population Dynamics and Distribution
MusH 440 Studies in American Music
Phil 430 Social and Political Philosophy
PolS 275 American State and Local Government
PolS 431 American Political Parties and Elections
PolS 432 American Congress
PolS 433 American Political Culture
PolS 437 American Presidency
PolS 438 Conduct of American Foreign Policy
PolS 460 Law and Society
PolS 467 Constitutional Law
PolS 468 Civil Liberties
Soc 101 Introduction to Sociology
Soc 313 Collective Behavior
Soc 323 Social Stratification
Soc 324 Sociology of Gender
Soc 325 Sociology of the Family
Soc 414 Development of Social Theory
Four courses in literature and history, incl at least 3 cr in each (selected from the following list) (12 cr):
Engl 343-344 Survey of American Literature
Engl 380 Introduction to U.S. Ethnic Literature
Engl 427 American Fiction, 1914-1945
Engl 429 Contemporary Fiction
Engl 470 American Literature to 1830
Engl 471 American Literature, 1830-1865
Engl 473 Literature of the American West
Engl 474 American Literature, 1865-1914
Engl 483 African American Literature

Engl 484 American Indian Literature
Hist 313 Red, White, and Black: The Peopling of Early North America
Hist 315 Comparative African-American Cultures
Hist 417 United States, 1900-1945
Hist 418 Recent America, 1945-Present
Hist 424 American Environmental History
Hist 431 History of Indian-White Relations

# Academic Minor Requirements

## AMERICAN STUDIES MINOR

AmSt 301 Studies in American Culture (3 cr)
Six courses numbered 300 or above, chosen from the emphasis lists under the American Studies major (18 cr)

Note: No course used toward an American Studies minor may also be used toward any major.

# Department of Animal and Veterinary Science

**Richard A. Battaglia, Dept. Head (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; e-mail susanf@uidaho.edu).** ***Faculty:*** **Amin Ahmadzadeh, Bruce C. Anderson, Richard A. Battaglia, Ernest L. Brannon, Marie S. Bulgin, James J. England, Dean E. Falk, Dennis G. Falk, Ronald W. Hardy, Rodney A. Hill, Dan D. Hinman, Alexander Hristov, Carl W. Hunt, Paul S. Kuber, Mark A. McGuire, John C. Miller, Patrick A. Momont, Richard J. Norell, Troy L. Ott, Ronald P. Richard, Dirk K. Vanderwall, Alton C. S. Ward, Gordon L. Woods, Jerry L. Zaugg.**

Animal agriculture has a major role in providing the supply of high quality food, not only for the people of the United States, but also for those of other nations. Food and fiber obtained from animals include meat, milk, eggs, wool, and many by-products. Knowledge and skills resulting from a college education in this field will permit the graduate to contribute to improved production and health of the nation's livestock including beef, sheep, dairy, swine, poultry, horses, and companion animals.

In addition to classrooms and laboratories located in the Agricultural Science Building, the department's facilities include production centers for dairy, beef, and sheep, as well as a meats laboratory and livestock judging pavilion. Several breeds of animals are maintained for instructional purposes. The academic program is designed to prepare students for a variety of important and rewarding career opportunities. For more specific information, get in touch with the department head (208/885-6345).

To prepare students for the varied types of occupations available in animal agriculture, the Department of Animal and Veterinary Science offers a bachelor of science degree in animal science with three majors: animal science-production, dairy science, and agribusiness, a bachelor of science degree in range livestock management, and a bachelor of science degree in science/preveterinary. Each of these majors, while attempting to provide the students with a sound background in animal biology, has its separate emphasis on complementary academic training. One of the strongest features of these programs is the flexibility provided. Each major permits the student to plan the precise course of study that will best prepare him or her for the area of work that he or she desires to enter. The department also offers a minor in animal science for students desiring a background in animal agriculture to complement their major field of study.

The major in **animal science-production** is designed for students who desire to pursue a career in livestock production, graduate work in one of the varied disciplines in animal sciences (nutrition, breeding, physiology, growth, endocrinology, meats, etc.), or for employment by companies that require intensive training in animal biology. This major is also excellent training for those interested in Cooperative Extension.

A major in **dairy science** helps prepare students for careers in one of Idaho's fastest growing industries. This major offers introductory and advanced course work and "hands on training" at a modern dairy center. Specific courses are taught in dairy nutrition, forage crops, dairy reproduction and physiology, dairy cattle evaluation, dairy products and processing, physiology of lactation, herd health management, agriculture power and machines, and farm management. Students are eligible to participate in the cooperative of university dairy students (CUDS) program.

The major in **range livestock management** attempts to provide, in addition to intensive training in animal biology, a sound background in the relationship between animals and plants. To this end the student receives training in range management, forage crop production, and soils. This major is designed for students who desire to pursue a career in range livestock production or employment with companies or agencies that deal with the production and management of livestock on western ranges. Opportunities also exist for students to pursue graduate work in the areas of forage utilization and related fields.

The **agribusiness** major is designed for students who desire a career as entry level into management positions in livestock-related industries. This major is oriented toward business, economics, and agricultural economics, in addition to a sound background in production animal agriculture. With appropriate choices of elective courses, students can also prepare themselves for positions with financial institutions involved with the animal agriculture industry.

A **science/preveterinary** major is offered for students interesting in proceeding to veterinary school or a graduate program involving any of the disciplines of animal biology. If, after successful completion of 99 credits of required courses, a student with this degree major is admitted to a recognized college of veterinary medicine, and completes the first year of veterinary school (equivalent of at least 33 credits), that first year will constitute the senior year toward the degree of B.S.Vet.Sc. at UI. Alternatively, students may obtain this degree by completing the final 33 credits at UI.

The department offers **graduate programs** leading to the Master of Science degree with a major in animal or veterinary science and a Doctor of Philosophy degree with a major in animal physiology. The department offers areas of specialization in nutrition, reproductive physiology, embryo physiology, animal growth and development, meat science, and animal diseases with orientation towards beef cattle, dairy cattle, horses, sheep, and fish. The department also participates in university interdisciplinary programs in reproductive biology, and molecular and agricultural genetic engineering.

Graduate work in the department is designed to prepare the student for work in research, extension, teaching, and industry. Thesis projects are diverse in scope and range in design from studying very fundamental biological questions to application of scientific knowledge to animal production and management. Facilities available for graduate student research include herds and flocks of major livestock breeds, ruminant nutrition and physiology laboratories, biomedical research laboratories, a university-operated dairy, meat science laboratory, and a 500-head experimental feedlot. Active cooperation is maintained with federal research agencies

located on and off campus.

Graduate student assistantships are available on a competitive basis each year. Inquiries should be directed to the department's graduate program coordinator.

## Courses

See Part 6 for courses in Animal and Veterinary Science (AVS) and Veterinary Science (VS).

## Undergraduate Curricular Requirements

### AGRIBUSINESS (B.S.An.Sc.)

The agribusiness major with its dual emphasis on animal science and business is designed for students who want to enter management positions in livestock-related industries.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal and Veterinary Orientation (2 cr)
AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 110 Animal Husbandry Laboratory I (1 cr)
AVS 209 Science of Animal Husbandry (3 cr)
AVS 210 Animal Husbandry Laboratory II (1 cr)
AVS 221 Growth and Development of Farm and Companion Animals (3 cr)
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 363 Animal Products for Human Consumption (3 cr)
AVS 371 Anatomy and Physiology (4 cr)
AVS 450 Issues in Animal Agriculture (1 cr)
AVS 452 Physiology of Reproduction (4 cr)
Two of the following courses (6 cr):
- AVS 466 Horse Production
- AVS 472 Dairy Cattle Management
- AVS 474 Beef Cattle Science
- AVS 476 Sheep Science
- AVS 478 Swine Production

Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
AgEc 101 Agricultural Economics and Agribusiness (3 cr)
AgEc 278 Principles of Farm and Ranch Management (4 cr)
AgEc 289 Agricultural Markets and Prices (3 cr)
AgEc 394 Analytical Techniques in Agribusiness and Economics or AgEc 453 Ag Price Analysis or AgEc 481 Ag Markets in a Global Economy (3 cr)
Two of the following courses (6 cr):
- AgEc 332 Economics of Agricultural Development
- AgEc 361 Farm and Natural Resource Appraisal
- AgEc 383 Economics for Natural Resource Managers

ASM 240 Computer Applications in Biological Systems (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
BLaw 265 Legal Environment of Business (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201, 202 Principles of Economics (6 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Stat 251 Principles of Statistics (3 cr)
Business electives (6 cr)
Electives to total 132 cr for the degree

### ANIMAL SCIENCE - PRODUCTION (B.S.An.Sc.)

The animal science major prepares students to pursue a career in livestock production, for graduate study in any of the varied disciplines in animal science, or for employment that requires intensive training in animal biology.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal and Veterinary Orientation (2 cr)
AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 110 Animal Husbandry Laboratory I (1 cr)
AVS 209 Science of Animal Husbandry (3 cr)
AVS 210 Animal Husbandry Laboratory II (1 cr)
AVS 221 Growth and Development of Farm and Companion Animals (3 cr)
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 330 Genetics of Farm Animals (3 cr)
AVS 363 Animal Products for Human Consumption (3 cr)
AVS 371 Anatomy and Physiology (4 cr)
AVS 450 Issues in Animal Agriculture (1 cr)
AVS 452 Physiology of Reproduction (4 cr)
Two of the following courses (6 cr):
    AVS 466 Horse Production
    AVS 472 Dairy Cattle Management
    AVS 474 Beef Cattle Science
    AVS 476 Sheep Science
    AVS 478 Swine Production
AVS 471 Animal Disease Management (3 cr)
AgEc 278 Principles of Farm and Ranch Management (4 cr)
AgEc 289 Agricultural Markets and Prices (3 cr)
ASM 240 Computer Applications in Biological Systems (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
MMBB 250 General Microbiology (5 cr)
PlSc 308 Forage and Grassland Management (3 cr)
Rnge 251 Principles of Range Resources Management (2 cr)
Stat 251 Principles of Statistics (3 cr)
Life science electives (4 cr)
Electives to total 132 cr for the degree

## DAIRY SCIENCE (B.S.An.Sc.)

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal and Veterinary Orientation (2 cr)
AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 110 Animal Husbandry Laboratory I (1 cr)
AVS 172 Principles and Practices of Dairy Science (3 cr)
AVS 209 Science of Animal Husbandry (3 cr)
AVS 210 Animal Husbandry Laboratory II (1 cr)
AVS 221 Growth and Development of Farm and Companion Animals (3 cr)
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 330 Genetics of Farm Animals (3 cr)
AVS 363 Animal Products for Human Consumption (3 cr)
AVS 371 Anatomy and Physiology (4 cr)
AVS 413 Physiology of Lactation (3 cr)
AVS 450 Issues in Animal Agriculture (1 cr)
AVS 452 Physiology of Reproduction (4 cr)
AVS 472 Dairy Cattle Management (3 cr)
AVS 475 Advanced Dairy Management (2 cr)
One of the following courses (3 cr):
    AVS 466 Horse Production
    AVS 474 Beef Cattle Science
    AVS 476 Sheep Science
    AVS 478 Swine Production
ASM 240 Computer Applications in Biological Systems (3 cr)
Biol 112 Biological Principles and Mechanisms (5 cr)
Chem 111 Principles of Chemistry (4 cr)

Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
MMBB 300 Survey of Biochemistry (3 cr)
PlSc 308 Forage and Grassland Management (3 cr)
Stat 251 Principles of Statistics (3 cr)
FST Upper-division elective approved by advisor (3 cr)
Electives to total 132 cr for the degree

## RANGE LIVESTOCK MANAGEMENT (B.S.R.L.M.)

The major in range livestock management provides training in animal science with a sound background in the relationship between animals and plants and is intended for students interested in the management or operation of range and pasture beef cattle or sheep operations.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal and Veterinary Orientation or Rnge 200 Seminar (1-2 cr)
AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 450 Issues in Animal Agriculture (1 cr)
AVS 452 Physiology of Reproduction (4 cr)
AVS 474 Beef Cattle Science or 476 Sheep Science (3 cr)
ASM 240 Computer Applications in Biological Systems (or advanced placement test by department) (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 203 General Botany (4 cr)
Biol 311 Plant Physiology or PlSc 401 Crop Physiology (3-4 cr)
Biol 341 Systematic Botany (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201, 202 Principles of Economics (6 cr)
Engl 317 Technical Writing (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry or 160 Survey of Calculus (3-4 cr)
PlSc 308 Forage and Grassland Management (3 cr)
Rnge 221 Natural Resources Ecology (3 cr)
Rnge 251 Principles of Range Resources Management (2 cr)
Rnge 352 Natural History of Rangelands (3 cr)
Rnge 354 Wildland Vegetation Management and Restoration (3 cr)
Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
Rnge 430 Riparian Ecology and Management (2 cr)
Rnge 456 Integrated Rangeland Management (3 cr)
Rnge 459 Rangeland Ecology (3 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Stat 251 Principles of Statistics (3 cr)
Courses selected from the following (a minimum of 3 cr in each college) (8 cr):
- AVS 218 Artificial Insemination and Pregnancy Detection (2 cr)
- AVS 263 Live Animal and Carcass Evaluation (3 cr)
- AVS 330 Genetics of Farm Animals (3 cr)
- AVS 371 Anatomy and Physiology (4 cr)
- AVS 411 Ruminant Nutrition (3 cr)
- AVS 466 Horse Production (3 cr)
- AVS 476 or 474 (if not taken above) (3 cr)
- Fish/WLF 290 Fish and Wildlife Ecology, Mgt, and Conservation (3 cr)
- For 270 Principles of Forest Ecosystem Mgt (2 cr)
- Rnge 353 Rangeland Plant Identification and Ecology (3 cr)
- Rnge 454 Rangeland Weed Management (3 cr)
- RRT 287 Professional Foundations of Resource Rec and Tourism (3 cr)

Electives to total 132 cr for the degree

## SCIENCE/PREVETERINARY (B.S.An.Sc. or B.S.Vet.Sc.)

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal and Veterinary Orientation (2 cr)
AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 110 Animal Husbandry Laboratory I (1 cr)
AVS 209 Science of Animal Husbandry (3 cr)
AVS 210 Animal Husbandry Laboratory II (1 cr)
AVS 221 Growth and Development of Farm and Companion Animals (3 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 371 Anatomy and Physiology (4 cr)
AVS 452 Physiology of Reproduction (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 202 General Zoology (4 cr)
Chem 111-112 Principles of Chemistry I-II (9 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Gene 314 General Genetics or Biol 210 Genetics (3-4 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
MMBB 250 General Microbiology (5 cr)
MMBB 300 Survey of Biochemistry (3 cr)
Phys 111-112 General Physics I-II (8 cr)
Stat 251 Principles of Statistics (3 cr)
Computer application course (3 cr)
Electives to total 132 cr for the degree

**And, for the B.S.An.Sc. only:**
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 330 Genetics of Farm Animals (3 cr)
AVS 450 Issues in Animal Agriculture (1 cr)
AVS 471, 472, 474, 475, 476, or 478 Species Production (6 cr)
Biol 212 Molecular and Cellular Biology (4 cr)
Chem 372 Organic Chemistry II (3 cr)

**And, for the B.S.Vet.Sc. only:**
First year in veterinary school (32 cr)

## Academic Minor Requirements

### ANIMAL SCIENCE MINOR

AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 363 Animal Products for Human Consumption (3 cr)
AVS 452 Physiology of Reproduction (4 cr)
Two of the following (6 cr):
AVS 472 Dairy Cattle Management
AVS 474 Beef Cattle Science
AVS 476 Sheep Science
AVS 478 Swine Production

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Animal and Veterinary Science. See the College of Graduate Studies section of part 4 for the general requirements applicable to all degrees.

**Master of Science.** The M.S. degree may be earned in either animal science or veterinary science. To qualify for full admission, candidates must fulfill the requirements of the Graduate College and have an overall grade-point average of 3.0 or better (4.0 scale) for their undergraduate study. Acceptance of students not having this minimum grade-point average is possible, subject to recommendation by the department's Graduate Committee. Applicants must submit scores received on the Graduate Record Examination general (aptitude) test.

The M.S. degree requires a minimum of 30 credits, at least 18 of which must be in courses numbered 500 and above. No more than 10 of the 500-level credits may be from research and thesis. Courses at the 300 level in supporting fields may be used as part of the M.S. degree program. All graduate students are required to complete the departmental graduate seminar twice during the degree program. Students are also required to assist with teaching during their graduate training.

Applicants for the M.S. degree program in animal science who have completed their undergraduate program in fields that are not

closely related to animal science will be required to complete deficiency courses as determined by the candidate's committee and approved by the department's Graduate Committee. The following are considered essential in an applicant's undergraduate program: chemistry and biochemistry (minimum of 12 credits); calculus; animal nutrition; animal breeding; physiology and/or endocrinology; one products course; and one animal production and management course. Specific animal production courses may be required as determined on an individual candidate basis.

Prospective students for the M.S. degree in veterinary science are expected to have either the D.V.M. degree or equivalent or have completed the requirements for a B.S. degree that was the equivalent of a major in biology, bacteriology, animal science, or other biological science.

**Doctor of Philosophy.** The Ph.D. degree may be earned in animal physiology. To qualify for admission, candidates must fulfill the requirements of the Graduate College and have an overall grade-point average of 3.25 or better (on a 4.00 scale) for their undergraduate and graduate work. Applicants must submit scores received in the Graduate Record Examination (aptitude test).

Applicants who have completed their previous degrees in fields not closely related to animal and veterinary science may be required to complete deficiencies as determined by the candidate's committee and approved by the department's Graduate Committee.

The Ph.D. degree in animal physiology requires a minimum of 78 credits beyond the B.S. or professional degree, at least 52 credits of which must be in courses numbered 500 and above. Thirty-nine credits of the 78 must be in courses other than AVS 600 (doctoral research and dissertation). Courses at the 300 level may not be used as part of the Ph.D. degree program. Doctoral students are required to complete the departmental graduate seminar each semester it is offered during the degree program. Students are also required to assist with teaching during their graduate training. Doctoral students must demonstrate competence in experimental design and data analysis prior to completion of the degree.

# Department of Architecture

**Robert M. Baron, Dept. Chair (207 Art and Arch. South 83844-2451; phone 208/885-6781; e-mail arch@uidaho.edu).**

***Architecture Faculty:*** **Diane M. Armpriest, Robert M. Baron, William B. Bowler, Jr., Bruce T. Haglund, Anne L. Marshall, Sherry McKibben (Boise), Wendy R. McClure, Daniel K. Mullin, D. Nels Reese, Brian F. Sumption, Paul G. Windley.**

***Interior Design Faculty:*** **Rula Z. Awwad-Rafferty (Program Coordinator), Shauna J. Corry, Stephen G. Thurston.**

***Adjunct Faculty:*** **C. Brian Cleveley, Stephen R. Drown.** ***Affiliate Faculty:*** **Jack Smith.**

The Department of Architecture offers three programs: the Professional Program in Architecture (B.S.Arch.-M.Arch.), the Interior Design program (B.F.A.), and the Research Program in Architecture (M.A. with a major in Architectecture).

The B.S.Arch.-M.Arch. is a five-year professional degree program accredited by the national Architectural Accrediting Board and is designed to prepare students for a professional career in architecture. The professional program takes five years to complete and includes courses in architectural design, history and theory of architecture, environmental control, structures, materials and methods of construction, urban theory, and professional practice. The B.S.Arch. can be completed after fulfilling the requirements of the fourth year. Qualified students may work toward completion of both the B.S.Arch. and M.Arch. requirements during their fourth and fifth years, receiving both degrees upon completion of their studies. They must apply for graduate status after the fourth year (application deadline is February 15). Graduate students must be classified as such at least in their final year.

Transfer students with prior four-year nonprofessional bachelor's degrees in architecture are welcome to apply directly to the M.Arch. program. Based on their transcripts, transfer students may be able to complete the M.Arch. in one year.

Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of preprofessional study following an unrelated bachelor's degree or one or two-year program following a related preprofessional bachelor's degree. These professional degrees are structured to educate those candidates who aspire to registration or licensure as architects.

The four-year, pre-professional degree, where offered, is not accredited by NAAB. The pre-professional degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program, or for employment options in fields related to architecture.

## Computer Equipment

Beginning in the fall semester of their junior year, all architecture and interior design majors are required to have their own computer and appropriate software for use in their studies.

## Courses

See Part 6 for courses in Architecture (Arch) and Interior Design (ID). See the section on “Fees and Expenses” in Part 2 for the architecture dedicated fee.

## Professional Architecture Program: B.S.Arch. & M.Arch.

The Professional Program is a five-year seamless program that involves fulfilling the requirements of both the B.S. Arch. and the M.Arch. simultaneously.

### BACHELOR OF SCIENCE IN ARCHITECTURE

This is a four-year preprofessional curriculum leading to a B.S.Arch. degree, not an accredited professional architectural degree. After the first year of study, academic achievement is reviewed to determine continued eligibility for continued study in architecture. Only students with a 2.5 or higher grade-point average are eligible for study in the second year. Another review is conducted at the end of the second year of study to reduce class size to 45 students. Applicants to the third year are required to submit a portfolio containing examples of graphic work in art and architecture. The portfolio, of no more than 10 pages, should be submitted in an 8-1/2" x 11" format. The submission should also contain a transcript of any college work outside the UI. The deadline for third year applications is May 20. Results of the evaluation are made known to applicants by the end of June.

Students accepted into the final two years of the curriculum are required to maintain a minimum 3.0 GPA and to receive a grade of

"B" or higher in architectural design courses. This is important as students who wish to complete the M.Arch. degree are required to gain acceptance to the College of Graduate Studies. See below for M.Arch. degree requirements.

Note: Students who have not been accepted into the third year of the curriculum may not enroll in architectural design courses. Students who have left the program may only re-enter the curriculum by application to the departmental admissions committee.

Required course work includes the university requirements (see regulation J-3) and:

Arch 151 Introduction to the Environmental Design Disciplines (2 cr)
Arch 156 Graphic Communication (2 cr)
Arch 255 Advanced Architectural Graphics (3 cr)
Arch 256 Basic Architectural Design (3 cr)
Arch 266 Materials and Methods (3 cr)
Arch 284 Computer Applications in Architecture I (3 cr)
Arch 353-354 Architectural Design I (10 cr)
Arch 366 Building Technology I (3 cr)
Arch 374 Computer Applications in Architecture II (2 cr)
Arch 385 History of Architecture I: Pre-Modern (3 cr)
Arch 386 History of Architecture II: Modern (3 cr)
Arch 453-454 Architectural Design II (10 cr)
Five of the following courses (15-17 cr):
- Arch 463-464 Environmental Control Systems
- Arch 465-466 Building Technology II
- Arch 475 Professional Practice I
- Arch 483 Urban Theory and Issues

Art 100 Visual Art (3 cr)
Art 110 Visual Communication (2 cr)
Art 111 Drawing I (2 cr)
Art 121-122 Visual Communication and the Design Process (5 cr)
ForP 365 Wood Building Technology (3 cr)
LArc 383 Architectural Site Design (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 160 Survey of Calculus or Phil 202 Intro to Symbolic Logic or Stat 251 Principles of Statistics or CS 112 Intro to Problem Solving and Programming (3-4 cr)
Phys 111 General Physics I (4 cr)
Electives to total 128 cr for the B.S.Arch. degree (including at least 6 cr of 300-level or above courses taken outside the college and 6 cr of 200-level or above courses taken within the college; credits earned in completion of an academic minor may be substituted)

### MASTER OF ARCHITECTURE

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Architecture. Eighteen of the 30 credits required for this degree must be at the 500 level, including the following courses: Arch 510 Graduate Seminar (2 cr), Arch 555 Graduate Architectural Design, vertical studio (5 cr), and Arch 556 Graduate Project (5 cr).

The remaining courses required to complete 30 credits for this degree may be 400- or 500-level architecture courses or 300- or 400-level courses in supporting areas. The following courses or their approved equivalent must be completed for the M.Arch. degree:

Arch 463-464 Environmental Control Systems (8 cr)
Arch 465-466 Building Technology II (6 cr)
Arch 475 Professional Practice I (3 cr)
Arch 483 Urban Theory and Issues (3 cr)
General graduate electives (6 cr)
Graduate architecture electives selected from the following (6 cr):
Arch 505 Architecture Research Methods
Arch 501 Graduate Seminars (Urban Morphology, Non-Western Architecture, Natural Lighting, Vital Signs, Urban Integration [Boise], Virtual Technologies, and Aging and Environment)
Arch 568 Technical Integration
Arch 506 Study Abroad

Equivalents must be approved by the chair of the Department of Architecture. Transfer students are placed in the program according to their academic qualifications. Depending on the background of the transfer student, up to five years of study may be required to complete the degree requirements.

## Other Undergraduate Curricular Requirements

### INTERIOR DESIGN (B.F.A.)

The Interior Design program is a four-year professional program that leads to the professional degree of Bachelor of Fine Arts in interior design. The mission of the program is to serve as Idaho's professional interior design program by providing a strong interdisciplinary design and visual art culture through a professionally recognized curriculum, allied research, and outreach opportunities, and to prepare graduates to serve society through their professional and community work.

Due to the unique configuration of the College of Art and Architecture, students in the interior design program graduate with a major in interior design (ID) and a minor in architecture. Students can also minor in other disciplines of their choice. Students also have the option of double majoring in interior design and architecture over the period of six years, thus graduating with a B.F.A. in interior design and an M.A. in architecture.

Admission into the program is highly competitive. Students must hold a minimum GPA of 2.50 with a grade of "C" or better in all required ID and Arch courses.

Required course work includes the university requirements (see regulation J-3) and:

ID 151 Interior Design (3 cr)
ID 152 Interior Design I (3 cr)
ID 256 Basic Architectural Design (3 cr)
ID 281-282 History of the Interior I-II (6 cr)
ID 332 Furniture Design and Construction (3 cr)
ID 343 Universal Design (2 cr)
ID 351-352 Interior Design II-III (8 cr)
ID 368 Materials and Specifications (3 cr)
ID 451-452 Interior Design IV-V (10 cr)
ID 478 Professional Practices for Interior Design (3 cr)
Arch 151 Introduction to the Environmental Design Disciplines (2 cr)
Arch 156 Graphic Communication (2 cr)
Arch 255 Advanced Architectural Graphics (3 cr)
Arch 266 Materials and Methods (3 cr)
Arch 284 Computer Applications in Architecture I (3 cr)
Arch 374 Computer Applications in Architecture II (2 cr)
Arch 385 History of Architecture I: Pre-Modern (3 cr)
Arch 386 History of Architecture II: Modern (3 cr)
Arch 463-464 Environmental Control Systems (8 cr)
Arch 475 Professional Practice I (3 cr)
Art 100 Visual Art (3 cr)
Art 111 Drawing I (2 cr)
Art 121-122 Visual Communication and the Design Process (5 cr)
FCS 123 Textiles (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Electives to total 128 cr for the degree (incl 4 cr from a list of advisor-directed electives)

## Academic Minor Requirements

### ARCHITECTURE MINOR

Arch 251 Principles of Architecture (2 cr)
Arch 385 History of Architecture I: Pre-Modern (3 cr)
Arch 386 History of Architecture II: Modern (3 cr)
Courses selected from the following (10 cr):
- Arch 156 Graphic Communication
- Arch 255 Advanced Architecture Graphics
- Arch 256 Basic Architecture Design
- Arch 266 Material and Methods
- Arch 463 Environmental Control Systems (3 cr--no lab)
- Arch 464 Environmental Control Systems (3 cr--no lab)
- Arch 483 Urban Theory and Issues
- LArc 383 Architectural Site Desig

### INTERIOR DESIGN MINOR

ID 151 Interior Design (3 cr)
ID 281-282 History of the Interior I-II (6 cr)
ID 368 Materials and Specifications (3 cr)
ID 478 Professional Practices for Interior Design (3 cr)
FCS 123 Textiles (3 cr)

Directed electives as approved by ID advisor (5 cr)

## Joint B.F.A. Interior Design & M.Arch. Program

Students who fulfill the requirements for the B.F.A. in interior design may apply for matriculation in the Master of Architecture program. Several architecture course requirements may be waived in lieu of interior design course work. This degree track may be completed in no less than six years. Details are available from the Department of Architecture.

## Graduate Research Program: M.A. with a Major in Architecture

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Architecture. Master of Architecture degree requirements are listed above.

The M.A. degree with a major in Architecture offers a research program open to candidates who hold a professional degree in architecture, B.S.Arch., M.Arch., or other degree holders who desire to embark on a career in architectural research and scholarship in an area of specialization represented by the expertise of participating graduate faculty. The program is designed for independent study under the guidance of an assigned major professor who will serve as both advisor and mentor. Graduate students work closely with their faculty mentors to develop a detailed program of study.

Acceptance into the program is contingent on the Research Program Committee's ability to pair the applicant's intended area of study with the interests and expertise of a participating faculty member willing to serve as mentor. Prospective students are encouraged to correspond with faculty members who could serve as mentor.

The M.A. degree requirements include: Arch 500 Master's Research & Thesis (10 cr), Arch 501/510 Seminar (4 cr), Arch 505 Architectural Research Methods (3 cr), and approved electives (13 cr).

The M.A. research degree is offered in the following areas of specialization for which faculty have expertise: history and theory; studies on traditional non-western and Native American architecture and settlements; studies of architecture and urbanism; studies in American architecture and urbanism; new design in historic settings, preservation of buildings, townscapes, and landscapes, conservation; virtual technologies; community design; rural issues; urban theory and issues (studies of urbanism); interior design issues; environmentally responsive design (day-lighting and sustainable architecture; environment, behavior, and aging).

### WOOD CONSTRUCTION AND DESIGN

For information on an undergraduate major in forest products with an option in wood construction and design, see the Department of Forest Products section.

# Department of Art

**Sally G. Machlis, Dept. Chair (112 Art and Arch. 83844-2471; phone 208/885-6851).** ***Faculty:*** **Delphine Keim Campbell, Iván E. Castañeda, Byron D. Clercx, Frank A. Cronk, Jill Dacey, David F. Giese, Glenn W. Grishkoff, Lynne Haagensen, Sally G. Machlis, George T. Wray, Joseph R. Zeller.** ***Adjunct Faculty:*** **Gail A. Siegel, H. Allen Wildey, William P. Woolston.** ***Affiliate Faculty:*** **John Larkin, Marilyn Lysohir, Jon Ochs, Melissa Rockwood.**

The art curriculum at UI leads to a B.A., B.S.Art Ed., or B.F.A. with a major in studio art degrees. This curriculum provides a broad base from which students may pursue a number of different career options. Students are required to complete a core of courses (the art core) designed to ensure an understanding of the historical and theoretical bases of art and design, while developing general competency in various media.

The B.F.A. degree is designed for those students who wish to develop professional careers in art. Requirements for the degree are stringent, and include intense involvement in studio work in the senior year, closely monitored by all faculty members, culminating in the development of a portfolio and written statement in support of a professional exhibition. Because the B.F.A. degree is a professional degree, often preparatory to pursuit of a Master of Fine Arts (M.F.A.) degree, students must maintain a minimum 2.5 GPA.

The B.S.Art Ed. degree is designed for those students intending to pursue a career of teaching in the public schools. In addition to the studio course requirements, students take a range of courses in the College of Education that lead to teacher certification. The B.S.Art Ed. is a rigorous degree specializing in studio art.

The B.A. degree with a major in art is designed to ensure a broad, liberal education with an emphasis in art. Students pursuing this degree must meet the B.A. degree requirements listed in the College of Letters and Science section of this catalog.

The Art Department offers two graduate degree programs: M.F.A. and M.A.T.

Graduate students are assigned studio space in the department's Graduate Art Studio (GAS House), as space and individual requirements permit. Priority is given to full-time graduate students.

Admission requirements for the M.F.A. include a minimum grade-point average of 2.80 and an undergraduate degree in a studio area, or its equivalent as determined by the Art Department graduate faculty. Fewer than 60 credits in studio courses, and 12 in art history (or criticism, theory, or history in a related field) at the undergraduate level is considered a deficiency. Applicants with these deficiencies who are admitted to the M.F.A. program may be required to include deficiency course work as part of their graduate program. Deficiency courses are required but do not count towards satisfying degree requirements.

Admission to the M.A.T. degree requires an approved undergraduate degree, or its equivalent as determined by the Art Department graduate faculty, at least 20 credits of undergraduate art course work, and a minimum grade-point average of 2.80. Fewer than 20 credits in art courses at the undergraduate level is considered a deficiency. Applicants with these deficiencies who are admitted to the M.A.T. program may be required to include deficiency course work as part of their graduate program. Deficiency courses are required but do not count towards satisfying degree requirements.

All applicants for the graduate programs are required to present a comprehensive portfolio of work, a written statement of goals or intent, and three letters of recommendation. Portfolios are normally in slide form, 20 clearly labeled slides, and must include a postage-paid return envelope. Original work may be submitted at the discretion of the graduate coordinator.

Graduate applicants should direct all correspondence to the UI Art Department graduate coordinator.

The Department of Art is accredited by the National Association of Schools of Art and Design (NASAD).

## Courses

See Part 6 for courses in Art (Art).

## Undergraduate Curricular Requirements

### ART CORE

Art 100 Visual Art (3 cr)
Art 110 Visual Communication (2 cr)
Art 111-112 Drawing I-II (5 cr)
Art 121-122 Visual Communication and the Design Process (5 cr)

## STUDIO ART (B.F.A.)

The B.F.A. is a four-year degree divided into two parts: the preprofessional program (freshman and sophomore years) and the professional program (junior and senior years). Majors are eligible to apply for the professional program when they have completed the art core and the 200-level art course requirements, and earned a minimum 2.5 GPA. Application for the professional program may be made during the semester the student is completing these requirements. Applications for the professional B.F.A. program will be requested each semester. Transcripts and a portfolio of the student's art work must accompany the application. Students accepted into the professional program must complete 15 credits of 300-level studio courses with at least 6 of the 15 credits in one sequential studio area and 12 credits of art history before enrolling in Art 490 and Art 495. Students must maintain a minimum GPA of 2.5 and receive a grade of C or better in the 300- and 400-level art courses. Students may reapply for entry into the professional program any semester after their sophomore year.

Required course work includes the university requirements (see regulation J-3), the art core, and a studio emphasis (all the 200-level and 300-level courses in a specific studio area) in one of the following areas: drawing, graphic design, interface design, painting, textile design, sculpture, printmaking, or ceramics, and:

Art 207 Survey of Western Art: Ancient to Medieval (3 cr)
Art 208 Survey of Western Art: Renaissance to Modern (3 cr)
Art 408 Readings in Art (3 cr)
Art 410 Gallery (2 cr)
Art 490 Art Studio (12 cr)
Art 495 BFA Senior Thesis (4 cr)
Art history courses (300 or 400 level) (9 cr)
200-level studio courses selected from the following (15 cr):
- Art 211 Drawing III
- Art 214 Textile Design I
- Art 221-222 Graphic Design I-II
- Art 231 Painting I
- Art 241 Sculpture I
- Art 251 Printmaking I
- Art 261 Ceramics I
- Art 271-272 Interface Design I-II
- Art 281 Watercolor I

300-level studio courses selected from the following (at least 6 cr must be taken in one sequential studio area, e.g., Art 311-312) (15 cr):
- Art 311-312 Drawing IV-V
- Art 314-315 Textile Design II-III
- Art 321-322 Graphic Design III-IV
- Art 331-332 Painting II-III
- Art 341-342 Sculpture II-III
- Art 351-352 Printmaking II-III
- Art 361-362 Ceramics II-III
- Art 371-372 Interface Design III-IV
- Art 391 Collage
- Art 392 Mixed Media

Electives to total 128 cr for the degree

No more than a combined total of 9 credits of the following courses may be applied toward a B.F.A. degree: Art 404, 488, 497, 498, and 499.

## ART (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, the art core, and a studio emphasis (all the 200-level and 300-level courses in a specific studio area) in one of the following areas: drawing, graphic design, interface design, painting, textile design, sculpture, printmaking, or ceramics, and:

Art 207 Survey of Western Art: Ancient to Midieval (3 cr)
Art 208 Survey of Western Art: Renaissance to Modern (3 cr)
Art 301 History of Art: 19th Century (3 cr)
Art 302 History of Art: 20th Century (3 cr)
Art 408 Readings in Art (3 cr)
Art 410 Gallery (2 cr)
200-level studio courses selected from the following (students pursuing a studio emphasis in graphic design must include Art 222; and interface design majors must include Art 272 (15-18 cr)
- Art 211 Drawing III
- Art 214 Textile Design I
- Art 221-222 Graphic Design I-II
- Art 231 Painting I
- Art 241 Sculpture I

Art 251 Printmaking I
Art 261 Ceramics I
Art 271-272 Interface Design I-II
Art 281 Watercolor I
300-level studio courses selected from the following (at least 6 cr must be taken in one sequential studio area, e.g., Art 311-312) (12 cr)
Art 311-312 Drawing IV-V
Art 314-315 Textile Design II-III
Art 321-322 Graphic Design III-IV
Art 331-332 Painting II-III
Art 341-342 Sculpture II-III
Art 351-352 Printmaking II-III
Art 361-362 Ceramics II-III
Art 371-372 Interface Design III-IV
Art 391 Collage
Art 392 Mixed Media
Electives to total 128 cr for the degree

### ART EDUCATION (B.S.Art Ed.)

Required course work includes the university requirements (see regulation J-3), the art core, a studio emphasis (all the 200-level and 300-level courses in a specific studio area) in one of the following areas: drawing, graphic design, interface design, painting, textile design, sculpture, printmaking, or ceramics, and the courses listed below.

Note: For registration in upper-division courses in the field of education, students must have been admitted to the teacher education program and have a GPA of 2.5, unless a higher average is stated as a prerequisite in the course description. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of part four of this catalog.

Art 301 History of Art: 19th Century (3 cr)
Art 302 History of Art: 20th Century (3 cr)
Art 408 Readings in Art (3 cr)
Art 410 Gallery (2 cr)
History elective selected from Arch 385 or 386, Comm 382 or 384, Comm 445, FCS 329, ID 281 or 282, LArc 389, Phil 421 (3 cr)
200-level studio courses selected from the following (students pursuing a studio emphasis in graphic design must include Art 222; and interface design majors must include Art 272) (18 cr):
Art 211 Drawing III
Art 214 Textile Design I
Art 221-222 Graphic Design I-II
Art 231 Painting I
Art 241 Sculpture I
Art 251 Printmaking I
Art 261 Ceramics I
Art 271-272 Interface Design I-II
Art 281 Watercolor I
300-level studio courses selected from the following (at least 6 cr must be taken in one sequential studio area, e.g., Art 311-312) (12 cr):
Art 311-312 Drawing IV-V
Art 314-315 Textile Design II-III
Art 321-322 Graphic Design III-IV
Art 331-332 Painting II-III
Art 341-342 Sculpture II-III
Art 351-352 Printmaking II-III
Art 361-362 Ceramics II-III
Art 371-372 Interface Design III-IV
Art 391 Collage
Art 392 Mixed Media
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development (3 cr)
EDTE 436 Secondary Art Methods I (2 cr)
EDTE 446 Secondary Art Methods II (2 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
EDTE 485 Internship (14-28 cr)
Electives to total 128 cr for the degree

## Academic Minor Requirements

### ART MINOR

Art 100 Visual Art (3 cr)
Art 110 Visual Communication (2 cr)
Art 111-112 Drawing I-II (5 cr)
Art 121-122 Visual Communication and the Design Process (5 cr)
200- and 300-level art studio classes and/or art history (9 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Art. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Fine Arts.** The Master of Fine Arts degree is a 60-credit degree designed for students wishing to prepare themselves for a career as a professional artist or art teacher at the college or university level.

The M.F.A. is the terminal degree in studio art and requires a thesis. The major portion of the student's thesis consists of a one-person exhibition of professional quality work supported by a written statement on the nature of the work. The statement includes an explanation of the evolution of the conceptual or theoretical basis for the work (including historical and contemporary examples and influences), and a discussion of the experiments, processes, and technical experiments that were used in the evolution of the work.

Areas of concentration are: painting, drawing, sculpture, ceramics, graphic design, textile design, printmaking, and interface design, or a direction may be developed that combines two or more of these areas. Students wishing to work in an area other than those listed above must clearly state their intention in their statement of goals or intent upon application for admission to the M.F.A. program.

A final oral examination is required (and may be supplemented with a written examination at the discretion of the graduate committee).

**Master of Arts in Teaching--Major in Art.** The Master of Arts in Teaching degree is a 30-credit degree designed for those students who are certified teachers wishing to strengthen their experience in studio art.

Of the 30-credit total, 20 credits must be in art courses and 6 in professional courses in education. At least 6 credits must be at the 500 level.

300- and 400-level courses in art may be counted towards the degree. M.A.T. students are encouraged to prepare themselves to take at least 6 credits, in 500-level art studio (Art 515, Art Faculty Studio), and to participate fully in graduate activities.

Areas of concentration are: painting, drawing, sculpture, ceramics, graphic design, textile design, printmaking, and interface design, or a direction may be developed that combines two or more of these areas. Students wishing to work in an area other than those listed above must clearly state their intention in their statement of goals or intent upon application for admission to the M.A.T. program. Students wishing to work in a studio in which they lack adequate preparation may be required to take deficiency courses as prerequisites.

A final oral examination is required (and may be supplemented with a written examination at the discretion of the graduate committee). The M.A.T. final examination may require a written statement as a basis for the oral examination. Such determination is at the discretion of the graduate committee.

# Department of Biological and Agricultural Engineering

**Charles L. Peterson, Interim Dept. Head (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu; http://www.uidaho.edu/bae).** ***Faculty:*** **Richard G. Allen, Jan Boll, Bingjun He, Thomas F. Hess, Thomas J. Karsky, Bradley A. King, Jack M. McHargue, W. Howard Neibling, Charles L. Peterson, Russell J. Qualls, Ronald E. Sheffield, Robert W. Smith, Barbara C. Williams.**

The **departmental mission** is teaching, research, and extension for solving engineering and technological management problems in agriculture, environment, biotechnology, and natural resources through an understanding of the biological and physical sciences. The department's teaching program includes degree programs in agricultural engineering and biological systems engineering, which are offered through the College of Engineering, and in agricultural systems management, offered through the College of Agriculture. Graduate programs in biological and agricultural engineering are offered through the College of Graduate Studies.

**Agricultural Engineering** is the profession that bridges the area between two fields of applied science--engineering and agriculture. It is oriented to the design of equipment and systems for production, processing, and transportation of food, feed, natural raw fiber, and forest products and for the effective use of natural resources. Agricultural engineers have the education and interests that make them uniquely capable of developing engineering solutions from agricultural and biological systems.

The agricultural engineering program at UI is designed to prepare students for a variety of interesting and rewarding careers. Many graduates are employed as design or development engineers by equipment manufacturers, irrigation companies, trade associations, engineering consulting firms, and governmental agencies. Others are self-employed in farm equipment manufacturing, consulting firms, and other engineering-related enterprises.

The graduate of this program can identify, formulate, and solve engineering problems through their knowledge in mathematics, science, and modern engineering tools. This requires obtaining appropriate knowledge in agricultural and biological sciences and natural resource topics, and the use of effective team skills. Graduates will have effective listening, writing, speaking, and presentation skills for communicating technical information. Graduates will be prepared to apply these skills in a broad context to an ever-changing world through understanding professionalism, relevant non-technical contemporary issues, and the need for life-long learning.

The curriculum leading to the B.S.Ag.E. is accredited by the Engineering Accreditation Commission of the Accrediting Board of Engineering and Technology (EAC/ABET). Students in this program are eligible to take the Fundamentals of Engineering (FE) Examination prior to graduation and to become registered professional engineers after graduating and completing an experience requirement.

**Biological Systems Engineering** is an undergraduate curriculum designed to prepare engineers to solve technological problems in systems that involve plants, animals, microorganisms, and biological materials. They produce creative and effective solutions to problems facing the environment, our food supply, and all types of living organisms in a biologically complex, interconnected and changing world. The program can be designed to prepare the student for advanced biomedical or environmental engineering studies.

The graduate of this program can identify, formulate, and solve engineering problems through their knowledge in mathematics, science, and modern engineering tools. This requires obtaining appropriate knowledge in chemistry and biological sciences, and the effective use of team skills. Graduates will have effective listening, writing, speaking, and presentation skills for communicating technical information. Graduates will be prepared to apply these skills in a broad context to an ever-changing world through understanding professionalism, relevant non-technical contemporary issues, and the need for life-long learning.

A broader emphasis in biology and chemistry is made within this curriculum compared to other engineering disciplines. Depending on their electives, graduates in biological systems engineering have opportunities to work with consulting and industrial firms in environmental engineering design, environmental control and monitoring, non-point source pollution abatement, bioremediation, hydrology, and water quality control. They may also work with food processing industries in storage, product development, and quality control. Other options include governmental agencies in water resources, environmental quality, and environmental protection.

The curriculum leading to the B.S.B.Sy.E. is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). Students in this program are eligible to take the Fundamentals of Engineering (FE) Examination prior to graduation.

**Agricultural Systems Management** emphasizes the use and management of equipment and systems based on an understanding of their design and operation. Agricultural systems management courses are designed to provide students with experience in systems technology and analysis of agricultural equipment and machinery applications, feed and food processing, agricultural electrification, soil and water management, and fabrication practices for agricultural and natural resource-based enterprises.

The undergraduate degree program in agricultural systems management (B.S.A.S.M.) is designed to prepare students to apply biological, physical, mechanical, and business knowledge to the production, service, sales, application, and management of the equipment and processes used in agriculture. The curriculum stresses courses in agriculture, agricultural systems management, and basic and applied sciences. It also includes a strong background in agricultural economics, accounting, and business. It prepares students for a variety of important and rewarding career opportunities. Many graduates return to farming, while others pursue careers

as farm managers or are employed in agricultural and natural resource-oriented businesses, banking firms, educational institutions, or governmental agencies. This curriculum is recognized by the American Society of Agricultural Engineers.

The agricultural systems management courses are also available to nonmajors interested in obtaining an understanding of the technology used in modern agricultural production systems. A minor in agricultural systems management can be used to support degree programs in other departments.

**Graduate study** is offered in biological and agricultural engineering with specialization in irrigation, water and chemical management, hydrology, soil and water conservation, subsurface water and chemical transport modeling, and climate modeling; alternative fuels and lubricants; harvesting and handling food and bioproduct processing of agricultural crops; off-road vehicle development, instrumentation and control; equipment design and development; and bioremediation and organic waste management and treatment. The M.S. and Ph.D. degrees are primarily research degrees. Prospective students should have the equivalent of a B.S. degree in engineering and must have a working knowledge of computers including mainframe and microcomputers, structured programming, and electronic spreadsheets.

**Assessment** of departmental objectives is accomplished by monitoring performance of students on the Fundamentals of Engineering examination and by student interviews. All graduates are interviewed at the time of graduation by the department to evaluate concerns, opportunities, and effectiveness of its educational programs. The assessment statistics can be obtained from the departmental office.

## Courses

See part 6 for courses in Agricultural Systems Management (ASM) and Biological and Agricultural Engineering (BAE).

## Undergraduate Curricular Requirements

### AGRICULTURAL ENGINEERING (B.S.Ag.E.)

Designed to prepare students for professional careers in agricultural engineering. The curriculum is administered under the College of Engineering and is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

Required course work includes the university requirements (see regulation J-3) and:

BAE 142 Engineering for Living Systems (2 cr)
BAE 242 Agricultural Engineering Analysis and Design (2 cr)
BAE 352 Soil and Water Engineering (3 cr)
BAE 355 Fundamentals of Hydrologic Engineering (3 cr)
BAE 372 Agricultural Power and Machines (3 cr)
BAE 441 Instrumentation and Measurements (3 cr)
BAE 459 Irrigation System Design (3 cr)
BAE 461 Agricultural Processing and Environment (3 cr)
BAE 462 Electric Power and Controls (3 cr)
BAE 478, 479 Engineering Design I, II (3 cr)
BAE 491 Senior Seminar (1 cr)
Chem 111-112 Principles of Chemistry I-II (9 cr)
CE 211 Engineering Measurements (3 cr)
CE 342 Theory of Structures (3 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 350 Engineering Mechanics of Material (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211-212 Engineering Physics I, II (6 cr)
Soil 205 General Soils (3 cr)
Stat 301 Probability and Statistics (3 cr)
Biological science electives (3 cr)
Communications electives (2 cr)
Computer science elective in a programming language (2 cr)
Humanities and social sciences electives (14 cr)
Technical electives – may incl upper-division biological science and must incl at least two formal 400-level Biological and Agricultural Engineering (11 cr)
Undesignated electives (4 cr)

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: AgE 143 and 242, Chem 111, Engr 210 and 220, Math 275, and Phys 211.

## AGRICULTURAL SYSTEMS MANAGEMENT (B.S.A.S.M.)

Designed to prepare students for careers in agriculture and agriculturally related businesses that require a knowledge of engineering methods. Emphasis is placed on the practical application of technology to agriculture. This curriculum is administered by the Department of Biological and Agricultural Engineering.

Required course work includes the university requirements (see regulation J-3) and:

ASM 112 Introduction to Agricultural Systems Management (3 cr)
ASM 200 Seminar (1 cr)
ASM 202 Agricultural Shop Practices (2 cr)
ASM 240 Computer Applications in Biological Systems (3 cr)
ASM 304 Agricultural Fluid Power Systems (2 cr)
ASM 305 Agricultural Machinery Systems (3 cr)
ASM 306 Agricultural Structures and Environmental Systems (3 cr)
ASM 315 Irrigation Systems and Water Management (3 cr)
ASM 331 Electric Power Systems for Agriculture (3 cr)
ASM 409 Agricultural Tractors and Power Units (3 cr)
ASM 414 Analysis of Agricultural Systems I (2 cr)
ASM 424 Analysis of Agricultural Systems II (2 cr)
ASM 433 Agricultural Processing Systems (3 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
AgEc 278 Principles of Farm and Ranch Management or AgEc 391 Agribusiness Management (3-4 cr)
Biol 102 Biology and Society (4 cr)
BLaw 265 Legal Environment of Business (3 cr)
CE 218 Elementary Surveying or ForP 230-231 Forest Land Measurements I-II (2 cr)
Chem 101 Introduction to Chem I or 111 Principles of Chem I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201, 202 Principles of Economics (6 cr)
ITED 265 Computer Aided Drafting/Design (2 cr)
Math 160 Survey of Calculus or 170 Analytic Geom and Calculus (4 cr)
Phys 100 Fundamentals of Physics, Phys 111 General Physics I, or Phys 211 Engineering Physics I (4 cr)
PlSc 102 The Science of Plants in Agriculture (3 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Stat 251 Principles of Statistics (3 cr)
Advanced writing electives (3 cr)
Agricultural and Technical electives (14 cr)
Business electives (3 cr)
Humanities and social sciences electives (8 cr)
Life sciences electives (3 cr)
Upper-division elective in Ag Econ or Business (3 cr)
Electives to total 129 cr for the degree

## BIOLOGICAL SYSTEMS ENGINEERING (B.S.B.Sy.E.)

Designed to prepare students for professional careers in biological systems engineering. The curriculum is administered under the College of Engineering and is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

Required course work includes the university requirements (see regulation J-3) and:

BAE 142 Engineering for Living Systems (2 cr)
BAE 242 Biological Systems Engineering Analysis and Design (2 cr)
BAE 355 Fundamentals of Hydrologic Engineering (3 cr)
BAE 361 Transport Processes in Biological Systems (3 cr)
BAE 386 Mechanics of Biomaterials or Engr 350 Engr Mechanics of Materials (3-4 cr)
BAE 441 Instrumentation and Measurements for Biological Systems (3 cr)
BAE 462 Electric Power and Controls (3 cr)
BAE 478, 479 Engineering Design I, II (3 cr)
BAE 491 Senior Seminar (1 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Chem 111-112 Principles of Chemistry I-II (9 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Engr 105 Engineering Graphics (2 cr)

Engr 210 Engineering Statics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 360 Engineering Economy (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
MMBB 250 General Microbiology (5 cr)
MMBB 380 Introductory Biochemistry (4 cr)
Phys 211-212 Engineering Physics I, II (6 cr)
Soil 205 General Soils (3 cr)
Stat 301 Probability and Statistics (3 cr)
Biological science electives (3 cr)
Communications elective (2 cr)
Computer science elective in a programming language (2 cr)
Technical electives (may include upper-division biological sciences, and must include at least two formal 400-level courses in Biological and Agricultural Engineering) (12 cr)
Humanities and social sciences electives (14 cr)
Undesignated electives (3 cr)

The minimum number of credits for the degree is 130, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: BSyE 143 and 242, Chem 111, Engr 210, Math 275, and Phys 211.

## Academic Minor Requirements

### AGRICULTURAL SYSTEMS MANAGEMENT MINOR

ASM 202 Agricultural Shop Practices (2 cr)
At least four credits from the following skill courses:
- ASM 107 Beginning Welding (2 cr)
- ASM 115 Graphical Representation or ITED 265 Computer Aided Drafting/Design (2 cr)
- ASM 210 Small Engines (2 cr)

At least ten credits from the following application courses:
- ASM 304 Agricultural Fluid Power Systems (2 cr)
- ASM 305 Agricultural Machinery Systems (3 cr)
- ASM 306 Agricultural Structures and Environmental Systems (3 cr)
- ASM 315 Irrigation Systems and Water Management (3 cr)
- ASM 409 Agricultural Tractors and Power Units (3 cr)

The minimum number of credits in agricultural systems management courses for the minor is 19.

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Biological and Agricultural Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** General M.S. requirements apply. Study and research programs are available in all of the areas listed above.

**Master of Engineering.** General M.Engr. requirements apply.

**Doctor of Philosophy.** Admission to this program is based on the student's interest being compatible with faculty interest, funds, and facilities. Admission is given only after a thorough review of the student's academic background, research interests, and potential. Individual programs normally consist of three years' work beyond the bachelor's degree. The department does not have a mandatory foreign language requirement. Students are required, however, to broaden their education in an area outside the normal engineering and science curricula. This can be done by taking courses in the humanities and social sciences, demonstrating an in-depth proficiency in a foreign language, or participating in an equivalent broadening educational experience.

# Department of Biological Sciences

**Larry J. Forney, Dept. Chair (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280; http://www.uidaho.edu/LS/BioSc).** ***Faculty:*** **Steven N. Austad, John A. Byers, Michael A. Cantrell, Joseph G. Cloud, Mark E. DeSantis, Victor P. Eroschenko, Larry J. Forney, Donna J. Holmes, Rolf L. Ingermann, Michael B. Laskowski, Thomas A. McKean, James J. Nagler, Deborah L. Stenkamp, John M. Sullivan, Eva M. Top, Holly A. Wichman.** ***Affiliate Faculty:*** **Roberta J. Mason-Gamer.**

The biological sciences deal with the basic biological principles of all living things. The Department of Biological Sciences offers an integrated degree in Biology. The Biology core curriculum involves exposure to concepts fundamental to all living things at several levels of organization; upper-division electives allow students to emphasize natural history, anatomy/physiology, molecular/cellular/developmental, or quantitative/integrative biology.

The department offers B.A. and B.S. degrees in biology. Graduates from the department traditionally enter a variety of fields and many continue their education. Recent graduates have entered allied and public health professions, agribusiness, medical school, veterinary school, graduate school, law school, state and national agencies that deal with biology (e.g., forestry and fish and game departments, EPA), as well as a variety of environmental consulting agencies and biotechnology companies.

Graduate and undergraduate research concentrations are available in ecology and evolution (animal behavior, genetics, microbial ecology, systematics), medical biosciences (aging, development, neurobiology, physiology), and reproductive biology (development, endocrinology, fertility). For more specific information on research concentrations, please see faculty profiles on the department website.

The department offers Ph.D. and M.S. degrees in botany and zoology. A nonthesis graduate degree, the M.Nat.Sc., which is designed to increase the breadth and depth of understanding of biology and is designed primarily for secondary teachers, is also offered.

Admission to graduate programs in the department is based upon an estimate of probable success in work leading to a specific degree. The Graduate Record Examination (aptitude only) is required of all applicants.

Students with any questions should call the department chair at (208) 885-6280.

## Courses

See part 6 for courses in Biology (Biol), Botany (Bot), and Zoology (Zool).

## Undergraduate Curricular Requirements

### BIOLOGY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and the following (electives to be chosen in consultation with the departmental advisor):

Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 210 Genetics (4 cr.)
Biol 212 Molecular and Cellular Biology (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 314 Ecology and Population Biology (4 cr)
Biol 411 Senior Capstone (2 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 275/276 Carbon Compounds and Lab or Chem 277/278 Organic Chemistry and Lab (4 cr)
MMBB 380 Introductory Biochemistry or MMBB 300 Survey of Biochemistry (3-4 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Stat 251 Principles of Statistics (3 cr)
Phys 111-112 General Physics I-II (8 cr)

(NOTE: Students considering graduate school in biology are strongly encouraged to take Math 160, Chem 277/278, and MMBB 380.)

Plus 12 credits of approved electives from the following list (categories are intended only as a guide for student and advisor use):
**Natural History**
Biol 341 Plant Systematics
Biol 478 Animal Behavior
Biol 481 Ichthyology
Biol 483 Mammalogy
Biol 484 Invertebrate Zoology

Ent 440 Insect Identification
WLF 482 Ornithology

**Anatomy/Physiology**

Biol 311 Plant Physiology
Biol 324 Comparative Vertebrate Anatomy
Biol 423 Comparative Vertebrate Physiology
Biol 427 Vertebrate Histology and Organology
Biol 450 Comparative Vertebrate Reproduction
Ent 484 Insect Anatomy and Physiology
PlSc 405 Plant Pathology
MMBB 460 Microbial Physiology

**Quantitative/Integrative Biology**

Biol 421 Advanced Evolution/Population Dynamics
Biol 425 ST: Experimental Field Ecology
Biol 431 Landscape and Community Ecology
Ent 441 Insect Ecology
Math 437 Mathematical Biology
MMBB 425 Microbial Ecology
WLF 440 Conservation Biology
WLF 441 Behavioral Ecology
WLF 448 Fish and Wildlife Population Ecology

**Molecular/Cellular/Developmental (MCD) Biology**

Biol 354 Experimental Approaches in the Biological Sciences
Biol 461 Neurobiology
Biol 474 Principles of Developmental Biology
MMBB 409 Immunology
MMBB 440 Advanced Lab Techniques
MMBB 475 Molecular Biology of the Cell
MMBB 488 Genetic Engineering

In addition to the above electives, Biology majors are encouraged to enroll in at least 3 credits of coursework that emphasizes social, political or philosophical aspects of biology. A list of suggested courses will be provided by the student's advisor and is available on the department's website.

## PRE-MEDICAL AND PRE-DENTAL STUDIES

Admission to schools of medicine or dentistry involves satisfactorily fulfilling prerequisite course work, obtaining a sufficiently high score on the Medical College Admission Test (MCAT) or Dental Admission Test (DAT), submitting completed applications, and having a successful interview. The allied health advisor in the Department of Biological Sciences advises students in all areas of the application process and maintains MCAT and DAT study materials through the Reserve Desk in the University Library. A committee of three faculty members interviews pre-medical students (and pre-dental students on request), writes a letter of evaluation, and provides guidance to students in the interview process. A video recording of the interview is reviewed by the student with the allied health advisor to better prepare the student for formal interviews elsewhere.

Students with interests in either the M.D., D.D.S., or D.M.D. degree are urged to contact Professor Ingermann, Gibb 237, as early as possible.

(NOTE: Pre-medical and pre-dental students are strongly encouraged to take Chem 277/278.)

## PRE-NURSING STUDIES

Admission to a school of nursing involves meeting satisfactorily its entrance requirements, acceptable scholastic records or a satisfactory score on the nursing admission test, and possession of personal qualifications essential for effective nursing. Nursing schools differ in their prerequisites. Students should investigate the requirements of their school of choice.

The following two-year program is suggested for students who plan to transfer to a school of nursing.

Chem 101 Introduction to Chem I or 111 Principles of Chem I (4 cr)
Chem 275, 276 Carbon Compounds and Lab (4 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
MMBB 250 General Microbiology or 154 Intro Biology of Bacteria and Viruses (3-5 cr)
Psyc 101 Introduction to Psychology (3 cr)
Soc 101 Introduction to Sociology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Biol 120 Human Anatomy (4 cr)
Biol 121 Human Physiology (4 cr)
Humanities and social sciences electives (at least 6 cr in each field) (21 cr)
Communications electives (3 cr must be in written communication) (6 cr)
Electives (2 cr)

(NOTE: Pre-nursing students are strongly encouraged to take Math 143.)

### PRE-PHYSICAL THERAPY STUDIES

UI does not have a professional program in physical therapy and does not offer a degree program in pre-physical therapy. Students can, however, take courses that are prerequisites for admission into bachelor's, certificate, master's, or doctoral degree programs in physical therapy at other institutions. Completion of these prerequisites does not guarantee acceptance into a physical therapy program and these classes are not necessarily a part of a degree program at UI. Consequently, we strongly urge students to pursue a B.S. or B.A. degree in a related area (such as biology, psychology, or sport science) while completing the prerequisites for admission to a physical therapy degree program. Students applying as pre-physical therapy majors will be temporarily placed in the biology major. The pre-physical therapy advisor in the Department of Biological Sciences advises students interested in preparing to enter into a professional program at another institution. Three basic plans of study at UI can lead to qualification for admission to a professional program in physical therapy: (1) graduation from UI with a bachelor's degree in some related area and application to a master's degree program at some other institution, (2) graduation with a bachelor's degree in some related area and application to a certificate program at some other institution, or (3) completion of the physical therapy prerequisites after two to three years of study at UI and subsequent application and transfer to a bachelor's degree program in physical therapy at some other institution. However, competition for all degree programs in physical therapy is intense and most successful applicants, even to bachelor programs in physical therapy, already have a bachelor's degree in an allied area. Consequently, although we recommend the following physical therapy prerequisites for most master, certificate, or bachelor programs, students must enroll at UI in a traditional bachelor's degree program.

The master's program in physical therapy at Idaho State University, Idaho's only physical therapy program, is required by law to fill most of its program with Idaho residents. Consequently, Idaho residents have a competitive advantage in applying to this program. In addition to completing an undergraduate degree, the successful applicant must have completed the following list of prerequisite courses for the Idaho State University program. Students interested in the prerequisite courses for other programs should contact Professor Ingermann, Gibb 237.

**Prerequisite Courses (with a GPA of 3.0 in each category):**

**Biology (3 courses)**
- Courses 1 & 2: Biol 120 Human Anatomy and Biol 121 Human Physiology
- Course 3: Upper-division course, 3 cr minimum (Lab-only course will NOT be accepted. Courses in plant biology or evolution will NOT be accepted)

**Chemistry (2 courses)**
- Chem 111 and Chem 112 Introductory Chemistry with laboratory

**Physics (2 courses)**
- Phys 111 and Phys 112 Introductory Physics with laboratory

**Math/Statistics (1 course)**
- Stat 251 Principles of Statistics

**Psychology and Sociology or Anthropology or Health Science (2 courses)**
- Course 1: Psych 101 Introductory Psychology
- Course 2: Sociology or Anthropology or Health Science or Psychology. (This course must be relevant to health care, rural societies, cultural diversity, aging, health care administration, abnormal psychology or epidemiology. Marriage/family, religion or history courses will not meet this requirement.)

## Academic Minor Requirements

### BIOLOGY MINOR

Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 210 Genetics (4 cr)
Biol 212 Molecular and Cellular Biology (4 cr)
Biol 213 Principles of Physiology (4 cr)
Biol 314 Ecology and Population Biology (4 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Biological Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Doctor of Philosophy.** Major in botany or zoology. The Ph.D. program emphasizes research. In addition to the requirements listed above, admission is based upon the compatibility of the student's research interests with the areas of concentration offered by the department, and the availability of a faculty member to be the student's mentor.

**Master of Science.** Major in botany or zoology. The M.S. program emphasizes research. In addition to the requirements listed above, admission is based upon the compatibility of the student's research interests with the areas of concentration offered by the department and the availability of a faculty member to be the student's mentor.

**Master of Natural Science.** Major in biological sciences. This program is intended primarily for students who are currently engaged in, or planning to enter, secondary-school or junior-college teaching. The major part of the course work will be in biological sciences. A program will be planned by the advisor and the candidate for coherency and will include coverage of the following areas (prior undergraduate preparation included): physiology or biochemistry, evolution, systematics, ecology, morphology, genetics, and microbiology. The terminal project consists of a major paper and a comprehensive examination.

# Department of Business

**Joseph J. Geiger, Dept. Head (225A J. A. Albertson Bldg. 83844-3161; phone 208/885-6295; e-mail joeg@uidaho.edu).**
***Faculty:*** **Jeffrey J. Bailey, C. Randall Byers, Sue Clark, Richard B. Coffman, Raymond Dacey, Byron J. Dangerfield, Michael J. DiNoto, Daniel M. Eveleth, Joseph J. Geiger, Ismail H. Genc, S. M. Ghazanfar, Terrance Grieb, Te-Wahn Hahn, Douglas C. Haines, Alexander Korzyk, John J. Lawrence, R. Ashley Lyman, Michael A. McCollough, Mark E. McMurtrey, Scott K. Metlen, Jon R. Miller, John S. Morris, Linda J. Morris, Philip D. Olson, Kathy L. O'Malley, Michele O'Neill, Norman Pendegraft, Steven W. Pharr, Mario G. Reyes, Daniel L. Smith, Robert W. Stone, Dana L. Stover, Chong Leng Tan, Michael Tracey, Jerry L. Wegman.**

The six major fields (business economics, finance, information systems, management and human resources, marketing, and production/operations management) within the department lead to the B.S.Bus. degree. These programs provide a solid foundation in the liberal arts, a broad professional preparation in business, and in-depth course work in a major field. They are designed to prepare the student to excel in a competitive market environment. The department offers minors in business and in international business.

The business economics major prepares students for careers as economic forcasters, bankers, stockbrokers, labor or marketing analysts, lobbyists, or regional development specialists. The department offers three undergraduate economics degree programs, one in the College of Business and Economics and two in the College of Letters and Science. The essential difference among these programs is that those in the College of Letters and Science require fewer business courses and allow more electives. The less structured programs in this college are in the liberal arts tradition. A minor in economics is also offered through the College of Letters and Science. Another minor in international policy economy is offered jointly through the Colleges of Letters and Science and Business and Economics.

The finance major prepares students for careers in commercial lending, estate planning, security analysis, portfolio management, and corporate finance.

The information systems major prepares students in the areas of systems analysis and development, data base management, networking, and data communications.

The management and human resources major prepares students for opportunities in the areas of management and personnel administration. The management emphasis has a macro focus oriented toward individuals who will operate their own businesses or who aspire to a more general managerial focus. The human resources management emphasis is directed toward those individuals preparing for careers in personnel administration, recruitment and selection, training, compensation and benefits, and labor relations.

The marketing major prepares students for opportunities in a broad range of areas including management of retail and wholesale distribution, advertising, market research, and customer service operations.

The production/operations management major prepares students for management positions in operations planning and control, quality management and purchasing.

The business minor is designed for students outside of the CBE who desire an exposure to the field of business. The minor covers the primary fields in business, provides a background in business as a basis for further graduate work, and complements the student's academic major and future professional career.

The international business minor, open only to students with a major in the College of Business and Economics, complements each of the majors in the college, and prepares students to extend their disciplinary mastery to the global economy.

## Courses

See part 6 for courses in Business (Bus) and Business Law (BLaw), Economics (Econ).

## Undergraduate Curricular Requirements

### BUSINESS ECONOMICS (B.S.Bus.)

This program is offered through the College of Business and Economics.

Students preparing for professional careers as economists in private business, government service, or careers where a broad knowledge of economics is useful should elect this curriculum.

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Econ 352 Intermediate Microeconomic Analysis (3 cr)
Econ 353 Quantitative Economics and Forecasting or 453 Econometrics (3 cr)
Econ 490 Economic Theory and Policy (3 cr)

And one of the following options:

**A. GENERAL OPTION**

Additional upper-division credits in economics (9 cr)
Upper-division courses in related field areas, with approval of department (9 cr)

**B. FINANCIAL ECONOMICS OPTION**

Econ 343 Money and Banking (3 cr)
Bus 302 Intermediate Financial Management (3 cr)
Bus 407 Financial Institutions (3 cr)
At least one of the following (3 cr):
Bus 401 Investments
Bus 405 Portfolio Management
Bus 408 Security Analysis
Bus 481 International Finance
Additional upper-division credits in economics (6 cr)

## ECONOMICS (B.A.)

This program is offered through the College of Letters and Science.

Required course work includes the university requirements (see regulation J-3), the general College of L&S requirements for the B.A. degree, and:

Econ 201, 202 Principles of Economics; or Econ 272 Foundations of Economics and either Econ 201 or 202 or two more credits of an upper-division economics course* (6-7 cr)
Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Econ 352 Intermediate Microeconomic Analysis (3 cr)
Econ 353 Quantitative Economics and Forecasting or 453 Econometrics (3 cr)
Econ 490 Economic Theory and Policy (3 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Math 130 Finite Mathematics or Math 143 Pre-calculus Algebra and Analytic Geom and Phil 202 Intro to Symbolic Logic (3-6 cr)
Stat 251 Principles of Statistics (3 cr)
Additional upper-division credits in economics (12-14 cr)
Upper-division credits in a combination of anthro, geog, hist, political sc, psych, or soc (at least 9 credits in one social sc) (15 cr)

* A total of six credits in this area is required. Students who have completed Econ 272 with a final grade of B or better may either complete at least two additional upper-division credits in economics or take Econ 201 or 202 for two credits. Students who have completed Econ 272 with a final grade lower than B must take either 201 or 202 for two credits.

## ECONOMICS (B.S.)

This program is offered through the College of Letters and Science.

Required course work includes the university requirements (see regulation J-3), the general College of L&S requirements for the B.S. degree, and:

Econ 201, 202 Principles of Economics; or Econ 272 Foundations of Economics and either Econ 201 or 202 or two more credits of an upper-division economics course* (6-7 cr)
Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Econ 352 Intermediate Microeconomic Analysis (3 cr)
Econ 353 Quantitative Economics and Forecasting or 453 Econometrics (3 cr)
Econ 490 Economic Theory and Policy (3 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Math 130 Finite Mathematics (3 cr)
Math 160 Survey of Calculus or 170 Analytic Geometry and Calculus I (4 cr)
Stat 251 Principles of Statistics (3 cr)
Additional upper-division credits in economics (12-14 cr)
Upper-division social science credits (credits earned in math beyond the stated requirement will be accepted) (15 cr)

* A total of six credits in this area is required. Students who have completed Econ 272 with a final grade of B or better may either complete at least two additional upper-division credits in economics or take Econ 201 or 202 for two credits. Students who have completed Econ 272 with a final grade lower than B must take either 201 or 202 for two credits.

## FINANCE (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 300 Accounting Concepts and Systems (3 cr)
Acct 301 Corporate Accounting and Reporting (3 cr)
Bus 302 Intermediate Financial Management (3 cr)
Bus 401 Investments (3 cr)
Bus 407 Financial Institutions (3 cr)
Bus 409 Problems in Financial Management (3 cr)
Econ 343 Money and Banking (may be used to fulfill college core econ requirements (3 cr)
One course selected from the following (3 cr):
- Bus 405 Portfolio Management
- Bus 408 Security Analysis
- Bus 481 International Finance

Two courses selected from the following (6 cr):
- Acct 385 Cost and Management Accounting
- Acct 430 Accounting for Public Sector Entities
- Acct 490 Advanced Corporate Accounting and Reporting
- Bus 362 Real Property Appraisal OR 364 Insurance
- Bus 405, 408, or 481 (if not chosen above)
- Bus 421 Marketing Research and Analysis
- Bus 427 Services Marketing
- Econ 352 Intermediate Microeconomic Analysis
- Econ 353 Quantitative Economics and Forecasting
- Econ 407 Public Finance OR Econ 408 State and Local Govt Finance
- Econ 453 Econometrics
- Stat 401 Statistical Analysis

In addition to all other requirements, students must take at least 12 credits from outside the CBE in addition to those specifically required.

## INFORMATION SYSTEMS (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Bus 250 Introductory Systems Development (3 cr)
Bus 352 Modern Information Technology (3 cr)
Bus 355 Systems Analysis and Design (3 cr)
Bus 453 Database Design (3 cr)
IS electives: at least two courses selected from the following (6 cr):
- Bus 378 Project Management
- Bus 439 Systems and Simulation
- Bus 452 Business Telecommunications Management
- Bus 454 Current Issues in Information Systems
- Bus 455 IS Project

Communications elective: one course (in addition to those taken to meet the CBE requirement) selected from the following (3 cr):
- Comm 331 Conflict Management
- Comm 433 Organizational Communication Theory and Research
- Engl 313 Business Writing
- Engl 317 Technical Writing
- Phil 201 Critical Thinking

Restricted electives: one additional courses from the IS electives or from the following (3 cr):
- Bus 418 Organization Theory
- Bus 427 Services Marketing
- Bus 472 Operations Planning and Scheduling
- Acct 385 Cost and Mgt Accounting
- Acct 492 Auditing and Controls
- Art 372 Interface Design IV (3 cr)
- Any course from computer science numbered 300 and above
- Econ 453 Econometrics
- Geog 385 GIS Primer
- Geog 470 Computer Mapping
- ME 409 Human Factors in Engineering Design

In addition to all other requirements, students must take at least 9 credits from outside the CBE in addition to those specifically required. These may be chosen from the restricted electives or from other courses.

## MANAGEMENT AND HUMAN RESOURCES (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 381 Accounting for Managers and Investors (3 cr)
Bus 412 Human Resource Management (3 cr)

Bus 413 Organizational Behavior (3 cr)
Bus 418 Organization Theory (3 cr)
And one of the following emphases:

**MANAGEMENT EMPHASIS**

Bus 414 Entrepreneurship (3 cr)
One of the following courses (3 cr):
- Bus 378 Project Management
- Bus 456 Quality Management
- Bus 470 Purchasing and Materials Management
- Bus 472 Operations Planning and Scheduling

One of the following courses (3 cr):
- Bus 323 Promotional Strategy
- Bus 324 Buyer Behavior
- Bus 326 Marketing Channels Management
- Bus 422 Sales Force Management
- Bus 425 Retail Distribution Management
- Bus 427 Services Marketing

One of the following courses (3 cr):
- Bus 302 Intermediate Financial Management
- Bus 362 Real Property Appraisal
- Bus 364 Insurance
- Bus 407 Financial Institutions
- Bus 481 International Finance

One additional course selected from those not taken in the three groups above (3 cr)
One of the following courses (3 cr):
- Comm 235 Organizational Communication
- Comm 331 Conflict Management
- Comm 433 Organizational Communication Theory and Research
- Psyc 320 Introduction to Social Psychology

In addition to all other requirements, students must take at least 9 credits from outside the CBE in addition to those specifically required.

**HUMAN RESOURCES MANAGEMENT EMPHASIS**

Bus 416 Staffing and Compensation (3 cr)
Bus 441 Labor Relations (3 cr)
One of the following courses (3 cr):
- Psyc 316 Industrial/Organizational Psychology
- Psyc 430 Tests and Measurements
- Psyc 435 Personnel Psychology
- Psyc 450 Training and Performance Support

One of the following courses (3 cr):
- Comm 235 Organizational Communication
- Comm 331 Conflict Management
- Comm 332 Communication and the Small Group
- Soc 322 Racial and Ethnic Relations

In addition to all other requirements, students must take at least 6 credits from outside the CBE in addition to those specifically required.

## MARKETING (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 301 Corporate Accounting and Reporting or higher level Acct course (3 cr)
Bus 324 Buyer Behavior (3 cr)
Bus 421 Marketing Research and Analysis (3 cr)
Bus 428 Marketing Management (3 cr)
One of the following communication courses (3 cr):
- Comm 233 Interpersonal Communication
- Comm 235 Organizational Communication
- Comm 331 Conflict Management
- Comm 332 Communication and the Small Group

Tier 1 Marketing Electives: Three of the following courses:
- Bus 420 Promotional Strategy
- Bus 422 Sales Force Management
- Bus 423 Internet Marketing
- Bus 424 Pricing Strategy and Tactics

Bus 425 Retail Distribution Management
Bus 426 Marketing Channels Management
Bus 427 Services Marketing
Bus 482 International Marketing
Tier 2 Business Electives: Two upper-division (300-400 level) CBE courses, excluding Bus 321 (6 cr)

In addition to all other requirements, students must take at least 9 to 11 credits from outside the CBE in addition to those specifically required.

### PRODUCTION/OPERATIONS MANAGEMENT (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Bus 378 Project Management (3 cr)
Bus 439 Systems and Simulation (3 cr)
Bus 456 Quality Management (3 cr)
Bus 470 Purchasing and Materials Management (3 cr)
Bus 472 Operations Planning and Scheduling (3 cr)
Three courses selected from the following (9 cr):
Acct 305 Accounting Information Systems
Acct 385 Cost and Management Accounting
Acct 486 Contemporary Management Accounting Issues
Acct 492 Auditing and Controls
Bus 355 Systems Analysis and Design
Bus 398 Internship (must be taken for 3 cr to satisfy this requirement)
Bus 412 Human Resource Management
Bus 413 Organizational Behavior
Bus 418 Organization Theory
Bus 441 Labor Relations
Bus 453 Database Design
Bus 478 Seminar in Operations Management

In addition to all other requirements, students must take at least 12 credits from outside the CBE in addition to those specifically required.

## Academic Minor Requirements

### BUSINESS MINOR

This minor is not open to students pursuing other college business options (e.g., foreign language/business option, music/business option, forest products/business option) or to students pursuing a major in the College of Business and Economics.

Students in the business minor must achieve at least a 2.35 GPA in statistics, economics, and accounting courses before enrolling in upper-division CBE courses.

Acct 201 Introduction to Financial Accounting (3 cr) and 202 Introduction to Managerial Accounting (3 cr), or Acct 205 Fundamentals of Accounting (4 cr)
Econ 202 Prin of Economics or 272 Foundations of Econ Analysis (3-4 cr)
Stat 251 Prin of Statistics or 271 Statistical Inference and Decision Analysis or 301 Probability and Statistics (3-4 cr)
Five of the following courses (or Bus 340-345) (15 cr)
Bus 101 Introduction to Business Enterprises
Bus 301 Financial Management
Bus 311 Introduction to Management
Bus 321 Marketing
Bus 350 Management Information Systems or 351 Introduction to Electronic Commerce
Bus 370 Production/Operations Management

### ECONOMICS MINOR

This academic minor (with its five different areas) is offered through the College of Letters and Science.

Econ 201, 202 Prin of Econ or 272 Foundations of Econ Analysis (4-6 cr)
Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Econ 352 Intermediate Microeconomic Analysis (3 cr)

And one of the following areas (with the permission of the student's advisor, the student may petition to have one substitute course for one of the following specific courses in the first four areas):

**Forecasting**

Econ 343 Money and Banking (3 cr)
Econ 353 Quantitative Economics and Forecasting (3 cr)
Econ 453 Econometrics (3 cr)

**Public Policy**
Econ 345 American Econ Dev or 390 Comparative Econ Systems (3 cr)
Econ 407 Public Finance or 408 State and Local Govt Finance (3 cr)
Econ 415 Market Structure and Governmental Policy (3 cr)

**Development**
Econ 430 Regional/Urban Economics (3 cr)
Econ 446 International Economics (3 cr)
Econ 447 Economics of Developing Countries (3 cr)

**Economic Resources**
Econ 385 Environmental Economics (3 cr)
Econ 441 Labor Economics (3 cr)
Course approved by student's advisor (3 cr)

**General Economics**
Upper-division economics courses approved by student's advisor and dept chair (9 cr)

## INTERNATIONAL BUSINESS MINOR

Note: This minor is limited to students majoring in the College of Business and Economics.

Bus 380 International Business (or Bus 345) (3 cr)
Bus 481 International Finance (3 cr)
Bus 482 International Marketing (3 cr)
Econ 446 International Economics (3 cr)
PolS 237 International Politics (3 cr)
One of the following courses or another approved elective (3 cr):
- Econ 390 Comparative Economic Systems
- Econ 415 Marketing Structure and Governmental Policy
- Econ 447 Economics of Developing Countries
- FLEN 307 The European Union
- PolS 440 International Organizations and International Law
- PolS 465 Politics and the Economy

Foreign language mastery is required equivalent to completion of the introductory and intermediate courses, and an upper-division course in a language. A semester of study and/or internship in another country is recommended. CBE students currently have direct access to academic programs at Växjö University (Sweden), Ecole Supérieure de Commerce de Chambéry (France), Pontifica Universidad Católica del Ecuador, Griffith University (Australia), Fachhochschule fur Technik und Wirtschaft Berlin (Germany), University of Zaragoza (Spain), Haagse Hogeschool (The Netherlands), the Southern Denmark Business School, and the University of Newcastle upon Tyne (United Kingdom). Further, CBE students have access to programs in Australia, Chile, France, Italy, and Spain through the University Studies Abroad Consortium, and to numerous schools in various countries through the International Student Exchange Program. Internships are developed on an ad hoc basis.

## INTERNATIONAL POLITICAL ECONOMY MINOR

This academic minor is offered through the College of Business and Economics and the College of Letters and Science.

Econ 446 International Economics (3 cr)
Econ 447 Economics of Developing Countries (3 cr)
PolS 237 International Politics (3 cr)
PolS 440 International Organizations and International Law (3 cr)
Nine credits selected from the following list, provided that no more than six credits are selected from a particular discipline (9 cr):
- Bus 481 International Finance
- Econ 385 Environmental Economics
- Econ 390 Comparative Economic Systems
- Econ 407 Public Finance
- Econ 415 Market Structure and Governmental Policy
- Econ 430 Regional/Urban Economics
- Geog 360 Population Dynamics and Distribution
- Geog 365 Political Geography
- IS 400 International Studies Seminar
- PolS 404 ST:Foreign Policy of the Pacific Rim
- PolS 404 ST:Investigating International Relations
- PolS 449 World Politics and War
- PolS 452 Administrative Law and Regulation

PolS 464 Politics of the Environment
PolS 465 Politics and the Economy
PolS 487 Political Violence and Revolution

## Graduate Degree Program

The Department of Business offers an M.S. Economics degree, an integrated course of study oriented toward policy analysis and applied studies. After building a theoretical base and mastering the analytical tools, the student is led to apply theory and use the tools in the analysis of practical policy issues, both public and private.

Two types of M.S. degrees are offered: (a) a thesis degree, which provides specialized research experience for careers requiring such expertise, and (b) a nonthesis degree, which provides a broader background for careers where research competency may be desirable but not of primary importance. Both degrees require completion of at least 30 credits of work.

Applicants are considered based on evidence of prior performance and potential for success in the program. Students are encouraged to submit Graduate Record Examination scores and letters of recommendation. Non-native speakers of English must score at least 550 on the TOEFL exam. The undergraduate degree need not be in economics, although a minor in economics is desirable. Students with little background in economics, or other deficiencies, will be required to take certain undergraduate courses that may not be included in the graduate study plan.

Students admitted to the program must fulfill the requirements of the College of Graduate Studies and of the Department of Economics. Financial assistance is available on a competitive basis. See the College of Graduate Studies section of part 4 for the general requirements applicable to all M.S. degrees.

# Department of Chemical Engineering

**Wudneh Admassu, Dept. Chair (312 Buchanan Engr. Lab. 83844-1021; phone 208/885-6793).** ***Faculty:*** **Wudneh Admassu, D. Eric Aston, David C. Drown, Louis L. Edwards, Jr., Roger A. Korus, Jin Y. Park, Aaron M. Thomas, Vivek Utgikar, Margrit von Braun.** ***Affiliate Faculty:*** **Thomas E. Carleson.**

Chemical engineering combines the science of chemistry with the discipline of engineering in order to solve problems and to increase process efficiency. One of the most attractive aspects of a chemical engineering future is the variety of work available. Chemical engineering is a blend of physics, chemistry, and mathematics; thus, a chemical engineer possesses a versatility that gives him or her many opportunities for employment in fields such as pulp and paper, environmental engineering, food products, nuclear power, petroleum and petrochemicals, semiconductors, synthetic fuels, radioisotope applications, plastics and polymers, pharmaceuticals, education, biomedical engineering, computer applications, alternate energy sources, steel, and textiles. A chemical engineer can choose work in any of the following areas: research and development, design and construction, operations, management, teaching, or technical sales.

The mission of the Department of Chemical Engineering is to provide quality educational programs firmly based in fundamental concepts and to perform and publish outstanding chemical engineering research. The goals of the Department of Chemical Engineering are (1) to prepare students with a broad-based education grounded in chemical engineering fundamentals, (2) to maintain an environment that promotes effective student/faculty involvement in teaching, research, and mentoring, (3) to promote an active interaction with regional industries, and (4) to graduate students capable of independent learning. In addition, the educational objective of the Department of Chemical Engineering is to prepare students who (1) are well grounded in the fundamentals of chemical engineering, (2) can understand, analyze, and design efficient processes, (3) are proficient in the oral and written communication of their work and ideas, (4) are able to work in multidisciplinary teams in conjunction with their design, formulation of problems, and conducting of experiments, (5) understand the safety and environmental consequences of their work, and (6) are instilled with a sense of social responsibility, ethics, and a commitment to life-long learning. Progress towards these goals and objectives is assessed by student performance on the nationally administered Fundamentals in Engineering Examination, exit interviews with graduating students, and surveys of graduated students and their employers.

The faculty of the Department of Chemical Engineering is dedicated to excellence in teaching. It is the faculty's goal to provide the students with a strong, well-rounded background for immediate entry into the industrial workforce or for graduate study. This background includes the theoretical aspects of chemical engineering as well as practical work experiences. Thus, most of the equipment that is installed in the Chemical Engineering laboratory is on the scale of pilot plant equipment. Because much of the equipment is made of glass, students are able to see at a glance what processes occur and where the streams are flowing. The department has a two-story distillation column, a gas absorber, two types of evaporators, a two-stage chemical reactor, a catalytic reactor, liquid extraction equipment, membrane based gas separation, process control lab, and supporting analytical equipment such as gas chromatographs. All of this equipment is used by undergraduate students. Proof that the departmental goals are being achieved is in the job-placement statistics for chemical engineers from UI. Most receive job offers before graduation and many graduates now hold high-level technical and management positions in industry, government, and academia.

The department has available a number of fellowships and assistantships for students. Support includes fellowships from industry and alumni; UI graduate assistantships; and research assistantships. Entering graduate students must normally hold a B.S. in chemical engineering.

Students entering the graduate program in the Department of Chemical Engineering can work towards an M.S. or Ph.D. degree. The graduate program also includes provisions for study leading to an M.S. in chemical engineering for students who have a B.S. degree in a related field. Students will be required to register as undergraduates for as many semesters as it takes to meet prerequisites to the courses required in the M.S.(Ch.E.) degree program..

Graduate studies in this department are highly diversified in order to accommodate the needs of most students who have a good basic background in the physical sciences, mathematics, and engineering. Areas of expertise include chemical reaction engineering; simulation, optimization and process design especially for the pulp and paper and food applications; hazardous waste characterization and bioremediation; membrane, nano-science, fluid mechanics, biochemical engineering; and mass transfer research. The graduate program in chemical engineering requires a total GRE score of at least 1450 (Analytical and Quantitative), as well as a TOEFL score of at least 550 (paper based) or 215 (computer based).

## Courses

See part 6 for courses in Chemical Engineering (ChE).

## Undergraduate Curricular Requirements

### CHEMICAL ENGINEERING (B.S.Ch.E.)

Required course work includes the university requirements (see regulation J-3) and:

ChE 110 Introduction to Chemical Engineering (1 cr)

ChE 123 Computations in Chemical Engineering (2 cr)
ChE 223 Material and Energy Balances (3 cr)
ChE 326 Chemical Engineering Thermodynamics (3 cr)
ChE 330 Separation Processes I (3 cr)
ChE 340-341 Transport and Rate Processes I-II (8 cr)
ChE 423 Reactor Kinetics and Design (3 cr)
ChE 433, 434 Chemical Engineering Lab I, II (2 cr)
ChE 444 Process Analysis and Control (3 cr)
ChE 445 Digital Process Control (3 cr)
ChE 453-454 Chemical Process Analysis and Design (6 cr)
ChE 491 Seminar (1 cr)
Chem 111-112 Principles of Chemistry I-II (9 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Chem 305, 307 Physical Chemistry and Lab (4 cr)
Chem 372, 374 Organic Chemistry II and Lab (4 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Engr 210 Engineering Statics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211-212 Engineering Physics I-II (6 cr)
Chemical engineering electives (3 cr)
Chemical/bioscience electives (4 cr)
Computer science elective in a programming language (2 cr)
Economics elective (3 cr)
Engineering electives (3 cr)
Humanities and social sciences electives (12 cr)
Communication electives (2 cr)
Mathematics electives (3 cr)
Technical electives (3 cr)

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in chemical engineering must earn a grade of C or better in each of the following courses before registration is permitted in upper-division chemical engineering courses: Chem 111 and 112; ChE 223; Engr 210, 320, and 335; and Math 275 and 310.

Students transferring ChE 223 or its equivalent from a university without an ABET accredited chemical engineering program must pass a test on the subject matter of this course before acceptance of the course for certification.

A passing grade (D or higher) is required in each of the following courses before registration is permitted in upper-division chemical engineering courses: ChE 123, computer science elective, Math 170 and 175, and Phys 211 and 212.

Any student majoring in chemical engineering may accumulate no more than four grades of D or F in UI mathematics, science, or engineering courses that are used to satisfy junior certification requirements. Included in this number are multiple repeats in a single class or single repeats in multiple classes. A warning will be issued in writing to students who have accumulated two grades of D or F in UI mathematics, science, or engineering courses used to satisfy curricular requirements.

An average GPA of at least 2.0 is required for all chemical engineering courses used to satisfy the curricular requirements.

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Chemical Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** General M.S. requirements apply.

**Master of Engineering.** General M.Engr. requirements apply.

**Doctor of Philosophy.** While most students entering the graduate program possessing only the bachelor's degree will first earn the M.S., it is possible to bypass the M.S and work directly toward the Ph.D. Students electing this option will be expected to critically analyze a current research area as part of their degree requirements. This will constitute their Ph.D. qualifying examination. For others, the oral M.S. thesis examination serves as the Ph.D. qualifying examination. A written research proposal modeled after those submitted to such agencies as the National Science Foundation is required as part of the requirements for the Ph.D.

# Department of Chemistry

**Chien M. Wai, Dept. Chair (116 Malcolm M. Renfrew Hall 83844-2343; phone 208/885-6552; e-mail chemoff@uidaho.edu).**
***Faculty:*** **Thomas E. Bitterwolf, I. Francis Cheng, Leszek Czuchajowski, Gustavo E. Davico, W. Daniel Edwards, T. Rick Fletcher, Peter R. Griffiths, Sharon J. Hutchison, Robert L. Kirchmeier, Jeanne L. McHale, Nicholas R. Natale, Pamela J. Shapiro, Jean'ne M. Shreeve, Ray von Wandruszka, Chien M. Wai, Richard V. Williams.**

Chemistry is the central science--the foundation on which a variety of applied and nonapplied disciplines build. Chemistry deals with the composition, structure, and properties of substances and the changes they undergo. It is the study of the materials of which the entire universe is composed. Chemistry graduates will find an impressive array of options and exciting opportunities in fields such as basic research, environmental protection, instrumentation, the search for and synthesis of new therapeutic drugs, new product and process development, technical marketing, market research, forensic chemistry, teaching at all levels, and information science. Moreover, an education in chemistry is valuable in health sciences such as medicine, pharmacology, clinical chemistry, and industrial hygiene. It can be useful as well in nontechnical areas such as advertising, journalism, patent law, banking, and investment counseling. The options are bounded only by the limits of one's imagination.

There are two distinct undergraduate curricula designed to meet a wide range of professional needs. The general chemistry curriculum leading to the B.S. degree provides a suitable foundation in chemistry for aspiring secondary-school teachers or for medicine. Even so, this is a subminimal curriculum for students who wish to become professional chemists. The professional curriculum (B.S.) is strongly recommended for students who are interested in practicing chemistry as a career, including graduate study for an advanced degree in chemistry or a related field. The degree is certifiable to the American Chemical Society.

Students majoring in chemistry at UI have the very good fortune to interact with an award-winning, distinguished teaching faculty. They have a unique opportunity to participate in undergraduate research in a nurturing environment where they work side by side with graduate students, postdoctoral fellows, and faculty members. Very often the research carried out by undergraduates results in publications in leading chemical journals. As a result of the strong research programs in the department, undergraduates have the opportunity in their courses to have hands-on experience with, or to acquire data from, modern sophisticated instrumentation such as FT nuclear magnetic resonance spectrometers, gas chromatographs interfaced with mass spectrometers, and laser Raman, infrared and ultraviolet spectrometers, in addition to the more classical techniques. Considerable use of computers is made in laboratory courses and as an aid to instruction. Because our students receive a first-class education, they are in demand by prospective employers and graduate schools.

M.S. and Ph.D. degrees are offered in chemistry with concentrations in analytical, inorganic, organic, and physical chemistry. The M.A.T. degree is also offered.

Entering graduate students (master's and doctoral candidates) are expected to demonstrate proficiency in chemistry by taking a series of four examinations in the areas of analytical (qualitative, quantitative, and instrumental), inorganic, organic (including qualitative organic analysis), and physical chemistry. These must be taken at the first offering after the student's arrival. These examinations are offered immediately before registration week of the fall and spring semesters. Questions are at an advanced undergraduate level.

Students who score at greater than the 50th percentile (established nationally) on a qualifying examination may begin with a 500-level course in that area in their first semester and are given credit for the relevant 400-level course (Chem 455, 466, 476, and/or 496). Students who score below the 50th percentile on an examination will begin course work in the respective area: analytical, Chem 454 (the laboratory in this course may be bypassed by petition if the student can present evidence--previous course at B level--of adequate exposure); physical, Chem 495; inorganic, Chem 463; organic, Chem 473.

All candidates for the M.S. or Ph.D. degree in chemistry are required to have teaching experience, here or elsewhere, as part of their training and will complete Chem 506 (Introduction to Teaching and Research Skills) at their first opportunity on entering the program.

## Courses

See part 6 for courses in Chemistry (Chem).

## Undergraduate Curricular Requirements

### CHEMISTRY: GENERAL (B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 253 Quantitative Analysis (5 cr)
Chem 277, 372 Organic Chemistry I, II (6 cr)
Chem 278, 376 Organic Chemistry Lab I, II (3 cr)

Chem 305-306 Physical Chemistry (6 cr)
Chem 307-308 Physical Chemistry Lab (2 cr)
Chem 409 Proseminar (1 cr)
CS 101 Introduction to Computer Science or higher CS course (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Phys 211, 212, 213 Engineering Physics I, II, III (12 cr)

This is a subminimal curriculum for students wishing to enter the profession of chemistry, but it will provide a suitable foundation in chemistry for students who intend to enter secondary-school teaching or medicine.

### CHEMISTRY: PROFESSIONAL (B.S.)

Note: Students who complete this curriculum will be certifiable to the American Chemical Society.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, the courses listed in the "Chemistry General" curriculum (above), and:

Chem 454 Instrumental Analysis (4 cr)
Chem 463-464, 465 Inorganic Chemistry and Lab (7 cr)
Chem 491 Research (1 cr)
MMBB 380 Intro Biochemistry or Chem 472 Rational Design of Pharmaceuticals (3-4 cr)
Foreign language courses (8 cr)

and either two additional chemistry courses having Chem 306 as a prerequisite, or two advanced chemistry courses approved by the Chemistry Department in accordance with American Chemical Society stipulations.

## Academic Minor Requirements

### CHEMISTRY MINOR

This program is designed to give a non-chemistry major a sufficient background in general chemistry and laboratory techniques to improve his or her employment prospects as a laboratory technician and to improve the technical background of the student interested in science education or communication.

Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 253 Quantitative Analysis (5 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Chem 302, 303 Principles of Physical Chemistry and Lab (4 cr)
Chem 372 Organic Chemistry II (3 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Chemistry. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** (A) Thesis option: General M.S. requirements apply. At least one credit must be earned in Chem 501. (B) Nonthesis option: A minimum of 30 credits in course work is required and must be divided among the following: (1) 20 credits in chemistry courses numbered 500 or above (including one credit in Chem 501); (2) 10 credits in chemistry courses numbered 400 or above, or related courses numbered 300 or above. A written and/or oral examination that covers graduate course work must be taken during the final semester in residence.

**Master of Arts in Teaching.** General M.A.T. requirements apply. If not already completed as an undergraduate, the following courses are required: Chem 302 and 303 or, recommended, Chem 305 and 307 (which have higher prerequisite requirements); also, Chem 372, and 435 or 454; some research experience in Chem 491 is also desirable. The four credits in electives are to be taken in 300-, 400-, or 500-level courses in biology, physics, or mathematics.

**Doctor of Philosophy – Major in Chemistry.** The student will enroll for at least 33 credit hours in courses. All students will take Chem 509 (Advanced Physical Chemistry) and obtain two credits in Chem 501 (Seminar). In addition, sufficient credit hours of research will be completed to meet a total minimum registration requirement of 78 credits.

The student is encouraged to take courses in related fields, e.g., mathematics, physics, chemical engineering, geochemistry, computer science, electronics, or biochemistry. This work can be designated as the minor or supporting field on the study program.

All Ph.D. candidates are required to participate in seminar (Chem 501) while in residence, even though not formally registered for credit in this course. Registration may be for zero credit.

Cumulative examinations are general examinations in the student's field of specialization to judge the breadth of knowledge gained by the student from courses, lectures, and the literature, as well as the ability to use this knowledge in the solution of a variety of problems. Once started, a student must continue to take these examinations each time they are offered whenever the student is in residence and is eligible. If a given examination is not taken, a failing grade is received. Examinations are approximately three hours in length and are given four times each semester and, in exceptional cases, during the summer session. Normally, students will take examinations only in the chosen area of concentration, but they may elect to take them in other areas of chemistry. The student must obtain an average grade of 50% in eight examinations to continue in the Ph.D. program.

Shortly after completing the final cumulative examination, Ph.D. students are required to submit a written proposal on their doctoral research project and defend it at an oral examination by their graduate committee (Chem 590). The proposal will be limited to a maximum of 5,000 words, excluding the bibliography, and will consist of a statement of the proposed doctoral research problem, an in-depth discussion of the relevant literature, a listing of the major research objectives, a summary of the proposed experimental work plan, and an appropriate bibliography.

**Doctor of Philosophy – Major in Biochemistry.** A Ph.D. with major in biochemistry is offered by the Department of Microbiology, Molecular Biology and Biochemistry. See that departmental section for information on the degree.

# Department of Civil Engineering

**Sunil Sharma, Interim Dept. Chair (104 Buchanan Engr. Lab. 83844-1022; phone 208/885-6782).** ***Faculty:*** **Richard G. Allen, Fouad M. Bayomy, John M. Buffington, Michael P. Dixon, Roger Ferguson, Fritz R. Fiedler, Peter Goodwin, James H. Hardcastle, Klaus Jorde, Zaher K. Khatib, Michael D. Kyte, Chyr Pyng Liou, Richard J. Nielsen, Howard S. Peavy, P. Steven Porter, Edwin R. Schmeckpeper, Sunil Sharma, Alfred T. Wallace.**

Civil engineering consists of the application of scientific principles to the design, construction, and maintenance of public and private works that constitute the infrastructure for human populations. From a historical aspect, the pyramids of Egypt, the water resources systems that supported the agricultural society of ancient Babylonia and Assyria, the public buildings of Greece and Rome, the roads that linked the Roman Empire, and the railroads and barge canals of the early United States were all civil engineering projects that served the people of their times. Today's civil engineers are still involved in building and maintaining the infrastructure necessary for modern society to function. A civil engineer may be involved in the design and construction of highways, bridges, buildings, water conveyance systems, water and wastewater treatment plants, dams, airports, and other constructed projects. Civil engineers may also be involved in planning for traffic controls, flood plain management, and water and air quality management. The graduates of civil engineering programs may work with consulting engineering firms, governmental agencies, construction contractors, or manufacturing industries.

In the foreseeable future, population growth and relocation should create a steady demand for infrastructure growth. The concept of environmentally sensitive and resource sustainable development is emerging as the tenet for future growth. Civil engineers will have to apply evolving technologies and develop innovative solutions to ensure wise stewardship of our limited natural resources. Students who enter civil engineering can anticipate a challenging and rewarding career.

Lower-division courses in civil engineering consist of a common core of basic courses in science, mathematics, and engineering required of most students within the college. Required course work in the junior and senior years provides the student with a broad background in civil engineering subjects while 15 credits of technical electives permit some specialization at the undergraduate level.

The Department of Civil Engineering occupies the first floor of the Buchanan Engineering Laboratory Building with some additional office and laboratory space in the basement and on the second floor of the building. Maintenance and replacement of existing equipment is provided by funds from research projects, from alumni donations, from lab fees, and from state educational funds. Instructional and research equipment include modern computing and data acquisition equipment.

The department offers three graduate degree programs in civil engineering: (1) Master of Science (30 credits, with thesis), (2) Master of Engineering (33 credits, nonthesis), and (3) Doctor of Philosophy (in limited specialty areas). It also offers the Master of Engineering with a major in engineering management. Course work requirements in each of the degree programs is relatively flexible depending on student interest and course availability. Financial assistance is available on a competitive basis in the form of instructional and graduate research assistantships. Students interested in graduate studies should select a specialty area in which they wish to study. Foreign students must have a TOEFL score of at least 550 for admission to any departmental graduate degree program.

Graduate study is offered with specialization in structures and structural mechanics, highway and pavement materials, soil mechanics, transportation, hydraulics and water resources, and sanitary engineering. Interdisciplinary programs of study are encouraged for interested students. As examples, students specializing in sanitary engineering may do considerable work in chemical engineering or biochemistry, and specialization in soil mechanics may involve study in geology or mining engineering.

The mission of the Department of Civil Engineering is to provide a high quality education at both the undergraduate and graduate level, emphasizing the needs of Idaho and the region. The goals and objectives of the program include graduating students that are (1) well grounded in the fundamentals of engineering and in the practice of civil engineering, (2) schooled in real-world scenarios that include the social and economic implications of engineered projects, (3) instilled with a sense of responsibility, ethics, and a commitment to life-long learning, (4) highly qualified, capable, ethical, and responsible, (5) academically capable and motivated to succeed, and (6) skilled in the design of civil engineering systems, components of systems, and processes to effectively and efficiently meet the needs of society. Additionally, the department is committed to (1) maintaining experienced, professional instructors, modern facilities, and close interaction between the department and the professional engineering community in Idaho, (2) extending the knowledge base in civil engineering through research, continuing education, technology transfer, and professional practice, and (3) providing these services in the most cost effective manner for both the students and the taxpayers. Progress toward these goals and objectives is assessed by student performance on the nationally administered Fundamentals of Engineering Exam, exit interviews with graduating students, surveys of graduated students and their employers, and by an external advisory committee composed of practicing civil engineers from the state and the region.

## Courses

See part 6 for courses in Civil Engineering (CE) and Engineering Management (EM).

# Undergraduate Curricular Requirements

## CIVIL ENGINEERING (B.S.C.E.)

To graduate in this program, a minimum grade of C must be earned in all engineering, mathematics, and science courses used to satisfy the curriculum.

Any student majoring in civil engineering may accumulate no more than 14 credits of D or F in mathematics, science, or engineering courses that are used to satisfy graduation requirements. Included in this number are multiple repeats of a single class or single repeats in multiple classes and courses transferred from other institutions. A warning will be issued in writing to students who have accumulated 7 credits of D or F in mathematics, science, or engineering classes used to satisfy curricular requirements.

Required course work includes the university requirements (see regulation J-3) and:

CE 115 Introduction to Civil Engineering (2 cr)
CE 211 Engineering Measurements (3 cr)
CE 215 Civil Engineering Analysis and Design (2 cr)
CE 322 Hydraulics (3 cr)
CE 323 Hydraulics Laboratory (1 cr)
CE 325 Fundamentals of Hydrologic Engineering (3 cr)
CE 330 Fundamentals of Environmental Engineering (3 cr)
CE 342 Theory of Structures (3 cr)
CE 357 Properties of Construction Materials (3 cr)
CE 360 Fundamentals of Geotechnical Engineering (4 cr)
CE 372 Fundamentals of Transportation Engineering (4 cr)
CE 431 Design of Water and Wastewater Systems I (3 cr)
CE 441 Reinforced Concrete Design or 444 Steel Design (3 cr)
CE 491 Civil Engineering Professional Seminar (1 cr)
Chem 111-112 Principles of Chemistry I-II (9 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engr 360 Engineering Economy (3 cr)
Engl 317 Technical Writing (3 cr)
One of the following (3-5 cr):
Biol 112 Biological Principles and Mechanisms
Chem 302/303 Principles of Physical Chemistry & Lab
Geol 111 Physical Geology for Science Majors
MMBB 250 General Microbiology
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211 Engineering Physics I (3 cr)
Stat 301 Probability and Statistics (3 cr)
Humanities and social sciences electives, incl at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite (16 cr)
Technical electives (incl at least 9 cr from CE 421, 422, 432, 441 or 444, 460, 473, 474, 475) (15 cr)

Technical electives from other engineering and science disciplines may be taken with permission. The student must demonstrate how the intended course is required to meet specific career objectives.

The minimum number of credits for the degree is 129, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

# Graduate Degree Programs

Graduate study is offered with specialization in the following subdisciplines of civil engineering: hydraulics and water resources engineering, environmental and sanitary engineering, structural engineering and structural mechanics, geotechnical engineering, and transportation engineering.

**Master's Degrees.** In addition to meeting the general requirements of the College of Graduate Studies stated in part 4 of this catalog, master's degree students are required to complete at least 12 credits of 500s level courses having a CE prefix, not including CE 500, 502, 503, 589, 597, 598, and 599. Master's degree students are required to complete at least 12 credits in courses associated with one of the subdisciplines of civil engineering listed above. The candidate must obtain grades of A or B in all courses submitted for the degree.

An approved thesis is required for Master of Science degrees. A maximum of 6 credits of CE 500, Master's Research and Thesis, can be used to fulfill M.S. degree requirements.

A minimum of 33 credits is required for the Master of Engineering degree. A thesis is not required and credit is not given for CE 500. A maximum of 3 credits of CE 502, Directed Study, can be used to satisfy M.Engr. degree requirements. M.Engr. students are required to demonstrate the ability to write a technical paper or report.

A final comprehensive examination conducted by the student's committee is required for master's degrees.

Applicants for admission to the master's degree programs generally will have a B.S. degree in civil engineering. Applicants with baccalaureate degrees in other majors are also eligible for admission; in these cases, after consultation with the student, deficiency courses will be specified by the student's advisory committee. Master's degree candidates not holding B.S. degrees in civil engineering are required to show evidence of completing a minimum of 16 credits of deficiency courses from the following list: CE 322, Hydraulics (3 cr), CE 325, Fundamentals of Hydrologic Engineering (3 cr), CE 330, Fundamentals of Environmental Engineering (3 cr), CE 342, Theory of Structures (3 cr), CE 357, Properties of Construction Materials (3 cr), CE 360, Fundamentals of Geotechnical Engineering (4 cr), CE 372, Fundamentals of Transportation Engineering (4 cr), and Engr 360, Engineering Economy (3 cr). Deficiency courses may be taken on a pass-fail basis, where passing is considered to be a grade of C or better.

**Doctor of Philosophy.** Persons interested in pursuing a doctoral degree must contact a correspondent in the department well in advance of admission to the Graduate College. Preliminary screening of candidates and program planning for those admitted are essential features of the Ph.D. program. Programs are offered with specialization in the following general areas: (1) water resources and hydraulics; (2) structures, structural mechanics, and construction materials; (3) geotechnical engineering with a major in soil mechanics; (4) transportation engineering; and (5) environmental engineering. The qualifying examination is written and/or oral, and the preliminary examination is written and oral. In addition, one of the following requirements must be satisfied: (1) satisfactory completion of a foreign language examination conducted by the Department of Foreign Languages and Literatures, or (2) completion of a humanistic-social study program approved by the Department of Civil Engineering.

# School of Communication

**Christopher P. Campbell, Director (201 Shoup Hall 83844-1072; phone 208/885-6458).** ***Faculty:*** **Anna Banks, Stephen P. Banks, R. Kenton Bird, Christopher P. Campbell, Annette L. Folwell, Sandra Haarsager, Patricia Hart, Glenn A. Mosley, Michael Nitz, Connie Owens, Jane Pritchett, Hans Rosenwinkel, Mark Secrist, Charla A. Windley, Harold "Al" Wildey, William P. Woolston.** ***Faculty Emeriti:*** **Don H. Coombs, Bert C. Cross, Peter A. Haggart, Tom E. Jenness, Paul L. Miles.**

Communication can be seen as the discipline that links other disciplines, a discipline that is vital if people, organizations, and governments are to cope with today's complex world. Students with degrees from the School of Communication pursue careers with newspapers and other print media; broadcasting, cable or satellite operations; public relations firms; advertising agencies; as practitioners of the visual arts; as communication specialists in private corporations and governmental agencies; or in other public and private communication enterprises. Graduates also pursue advanced degrees in communication.

The School of Communication provides theoretical and professional preparation in communication fields and also functions as an academic unit of the College of Letters and Science to provide communication courses to students in other fields of study and university general education core courses.

The school offers a B.A. and B.S. degree in communication, with options in advertising, communication studies, journalism, public relations, and visual communication. All of the programs provide students with preparation for carees or advanced degrees in communication.

Students seeking the B.A. degree are required to have a demonstrable proficiency in a foreign language and those seeking the B.S. degree must complete an 18-credit minor or area of emphasis in a subject area outside those taught by the School of Communication.

## Courses

See part 6 for courses in Communication (Comm).

## Undergraduate Curricular Requirements

Note: Required courses in a student's major cannot be used to satisfy the distributional requirements for the College of Letters and Science.

### COMMUNICATION (B.A. or B.S.)

Communication majors are required to take Comm 101 Fundamentals of Public Speaking, Comm 111 Introduction to Communication Studies, Comm 112 Media and Society, Comm 121 Media Writing (freshman or sophomore year), Comm 310 Communication Inquiry, Art 110 Visual Communication, and either Stat 150 or Stat 251. Candidates for the B.S. degree are required to complete an academic minor or area of emphasis of at least 18 credits outside the School of Communication. Students must obtain approval from the School of Communication to apply internship credit toward a degree from the school.

Comm 101, 111, 112, and 121 must be completed with a grade of C or better before a communication major may enroll in any upper-division communication courses.

Communication majors are required to take a sequence of courses that is intended to provided them with a comprehensive background in communication concepts, history, theory and practice. Majors are required to take:

A. A total of two courses (6 cr) from two of the three areas listed below. These two courses cannot also be counted toward the completion of the options described in section D:
   **Oral:**
   - Comm 233 Interpersonal Communication
   - Comm 235 Organizational Communication

   **Visual:**
   - Comm 275 Introduction to Video/Television & Digital Media Production
   - Comm 281 Understanding Photography
   - Comm 288 Introduction to Film Studies
   - Comm 291 Web Communication

   **Written:**
   - Comm 225 News Writing
   - Comm 252 Principles of Public Relations
   - Comm 265 Principles of Advertising

B. One of the following history courses:
   - Comm 382 History of Photography
   - Comm 384 History of American Film
   - Comm 445 History of Mass Communication

Comm 446 History of Communication Studies

C. One of the following courses:
Comm 442 Communication Law and Ethics
Comm 455 Research Methods in Communication

D. Majors are required to complete 12 credit hours in one of the following options. Courses recommended to fulfill these options include:

**Advertising Option:**
Comm 265 Principles of Advertising
Comm 361 Advertising Creativity
Comm 364 Advertising Media Planning
Comm 466 Advertising Campaign Strategy
Comm 468 The Advertising Agency

**Communication Studies Option:**
Comm 233 Interpersonal Communication
Comm 235 Organizational Communication
Comm 331 Conflict Management
Comm 332 Communication and the Small Group
Comm 335 Intercultural Communication
Comm 347 Persuasion

**Journalism Option:**
Comm 225 News Writing (required)
Comm 320 Information Gathering and Reporting
Comm 322 Broadcast News
Comm 324 News Editing and Production
Comm 425 Feature Article Writing
Comm 427 Public Affairs Reporting

**Public Relations Option:**
Comm 252 Principles of Public Relations
Comm 350 Public Relations Writing and Production
Comm 433 Organizational Communication Theory and Research
Comm 452 Public Relations Campaign Design
Comm 458 Public Relations Case Studies and Issues Management

**Visual Communication Option:**
Comm 275 Introduction to Video/Television & Digital Media Production
Comm 276 Intermediate Electronic/Digital Media Production
Comm 288 Introduction to Film Studies
Comm 291 Web Communication
Comm 375 Broadcast Television and Studio Program Production
Comm 386 Documentary Film/Television
Comm 387 Digital Imaging
Comm 484 Experiences in Visual Thinking

E. Communication majors are required to complete a capstone course, Comm 471 Senior Seminar in Communication (3 cr.), and an additional 9 credits of upper-division electives in communication.

A minimum cumulative university grade-point average of 2.50 is required of students in order to graduate with a communication degree. All students must have completed a minimum of 58 credits to enroll in any upper-division course (numbered 300 or above) offered by the school. Registration preference in all courses is given to School of Communication majors.

A student who graduates with a major in the School of Communication must complete a minimum of 128 credits of which a maximum of 6 internship credits (3 credits in Comm 498 and 3 credits from another academic field) may be applied toward the 128-credit minimum.

Communication majors cannot apply more than 48 hours of courses in communication (not including Comm 101) toward the 128-credit degree requirement and are required to take no fewer than 65 hours in the liberal arts and sciences.

# Academic Minor Requirements

## ADVERTISING MINOR

Comm 111 Introduction to Communication Studies (3 cr)
Comm 265 Principles of Advertising (3 cr)
Comm 361 Advertising Creativity (3 cr)
At least three of the following (9 cr):
Comm 252 Principles of Public Relations
Comm 364 Advertising Media Planning
Comm 431 Professional Presentation Techniques
Comm 442 Communication Law and Ethics

Comm 444 Communication and Public Opinion
Comm 468 The Advertising Agency

## COMMUNICATION STUDIES MINOR

Comm 111 Introduction to Communication Studies (3 cr)
Comm 233 Interpersonal Communication (3 cr)
Comm 332 Communication and the Small Group (3 cr)
At least three of the following (9 cr):
Comm 235 Organizational Communication
Comm 331 Conflict Management
Comm 335 Intercultural Communication

## JOURNALISM MINOR

Comm 112 Media and Society (3 cr)
Comm 121 Media Writing (3 cr)
Comm 225 News Writing (3 cr)
Comm 320 Information Gathering and Reporting (3 cr)
Comm 442 Communication Law and Ethics (3 cr)
Journalism-related course selected with the advisor to meet specific career goals (3 cr)

## PUBLIC RELATIONS MINOR

Comm 111 Introduction to Communication Studies (3 cr)
Comm 121 Media Writing (3 cr)
Comm 252 Principles of Public Relations (3 cr)
Comm 350 Public Relations Writing and Production (3 cr)
Comm 452 Public Relations Campaign Design (3 cr)
At least one of the following (3 cr):
Comm 235 Organizational Communication
Comm 354 Publications Editing
Comm 431 Professional Presentation Techniques

## VISUAL COMMUNICATION MINOR

Comm 275 Introduction to Video/Television & Digital Media Production (3 cr)
Comm 281 Understanding Photography (3 cr)
Comm 288 Introduction to Film Studies (3 cr)
Comm 291 Web Communication (3 cr)
At least two of the following (6 cr):
Comm 382 History of Photography
Comm 384 History of American Film
Comm 387 Digital Imaging
Comm 442 Communication Law and Ethics
Comm 445 History of Mass Communication
Comm 484 Experiences in Visual Thinking
Comm 478 Broadcast/Cable/Web Programming

# Department of Computer Science

**Robert E. Hiromoto, Dept. Chair (235 Janssen Engr. Bldg. 83844-1010; phone 208/885-6589; chair@cs.uidaho.edu; www.cs.uidaho.edu.** ***Faculty:*** **James Alves-Foss, Bruce M. Bolden, John W. Dickinson, James A. Foster, Deborah A. Frincke, W. Scott Harrison, Robert B. Heckendorn, Robert E. Hiromoto, Gurdeep S. Hura, William S. Junk, Axel W. Krings, John C. Munson, Paul W. Oman, Terence Soule, Molly W. Stock, David E. Thompson, Karen H. Van Houten.**

Computer science is the systematic study of algorithmic processes that describe and transform information: their theory, analysis, design, efficiency, implementation, and application. It is a broad discipline with an ever growing array of opportunities. Graduates in this field can find employment in a wide spectrum of public and private enterprises.

The field of computer science encompasses many areas of specialization. One may find a personal niche in software development, systems development and hardware selection, studies of compatibility between hardware and software, language development and modification, or perhaps a combination of these and any number of other diverse computer-oriented applications and concepts. Because of this diversity in potential application areas, the computer scientist must be familiar with the language of the physical sciences, mathematics, and English. If the computer is to extend its role as a benefit to mankind, the computer scientist must be broadly educated and conversant with the many implications of the powerful tool that he or she is controlling and developing.

The Department of Computer Science was formed in 1981 and is in the College of Engineering. The Bachelor of Science in Computer Science has been offered at UI since 1977. This program consists of a carefully designed computer science core, surrounded by an extensive array of challenging technical elective courses. The core consists of courses in algorithms and data structures, programming languages, computer architecture, operating systems, files and database, theory of computation, and a senior capstone design sequence. All of these courses have important components of theory, abstraction, and design.

The Bachelor of Science program in computer science is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB).

Students in computer science have the unique opportunity to draw from the expertise of an outstanding faculty with extensive experience in industry, teaching, and research. Computers currently available to students include an extensive department network of UNIX, Linux, and NT workstations and several campus personal computer laboratories. The department has established the Center for Secure and Dependable Software (CSDS) and the Initiative for Bioinformation and Evolutionary Studies (IBEST). The importance of these labs can be seen from the range of private and government funding which supports the department’s research in computer security, computer reliability, bioinformation, and evolutionary computation. All major campus and department computer systems are networked together with Internet connections, providing a state-of-the-art computing environment.

A graduate degree in computer science from UI prepares a student for a lifetime of discovery. It enables the graduate to advance the state of the art in computing, not merely to keep up with it. The graduate program develops the student's critical thinking, investigatory, and expository skills. The student will learn the foundations of computer science theory and application, and the interaction between the two. By understanding the extent and limitation of current knowledge in computer science, the graduate will learn to understand what issues are important and why. He or she will acquire the methodological skills to resolve important open problems and tackle challenging new projects. The student will learn to present problems and solutions, both orally and in writing.

The study of computer science at the graduate level requires mathematical maturity, skill in the use of high-level and machine-level programming languages, and basic knowledge of computer hardware. Admission to this program is highly competitive. Students who wish to enter the master's or doctoral degree program must demonstrate competence in specific areas equivalent to the material covered in several of the undergraduate computer science core courses. Normally a 3.0 undergraduate GPA and a Graduate Record Examination general (aptitude) score of 1700 are the minimum admission requirements. Actual admission is based on a combination of undergraduate GPA and Graduate Record Examination scores. International students for whom English is a second language must have a TOEFL score of 550 or higher.

The following courses are the minimum prerequisites necessary for admission to the master's or doctoral program: knowledge of a structured, high-level language; data structures; a full year of calculus; and discrete mathematics. A student who does not have an adequate background in computer science will be required to complete those courses in which he or she is deficient. Deficiency areas for graduate work in computer science are: compiler design; computer languages; operating systems; files and databases; computer architecture; and theory of computation. Credit for deficiency courses cannot be counted toward the total credits required for the graduate degree.

## Courses

See part 6 for courses in Computer Science (CS).

# Undergraduate Curricular Requirements

## COMPUTER SCIENCE (B.S.C.S.)

Required course work includes the university requirements (see regulation J-3) and:

CS 102 Computer Science Orientation (1 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
CS 245 Computer Organization and Architecture (4 cr)
CS 310 Computing Languages (3 cr)
CS 341 Computer Operating Systems (4 cr)
CS 360 Database Systems (3 cr)
CS 401 Contemporary Issues in Computer Science (1 cr)
CS 445 Systems Program Design (4 cr)
CS 480, 481 Design (8 cr)
CS 490 Theory of Computation (3 cr)
CS 495 Analysis of Algorithms (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
CoE 243 Digital Logic (3 cr)
CoE 244 Logic Circuit Lab (1 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175 Analytic Geometry and Calculus I, II (8 cr)
Math 176 Discrete Mathematics (3 cr)
Math 330 Linear Algebra (3 cr)
Phys 211-212 Engineering Physics I-II (8 cr)
Stat 301 Probability and Statistics (3 cr)
Upper-division electives selected to satisfy the credit distribution in the following three categories (for categories B and C, Math 400, 404, 499, and 513-519 may not be included) (15 cr)
Category A--any upper-division CS course except 499 (6 cr)
Category B--Math 275 or any upper-division Math or Stat course (3 cr)
Category C--any upper-division CS, Math, Stat, or CoE course, including no more than 3 cr in CS 499 (6 cr)
Science electives (4 cr)
Broadening electives (a list of acceptable courses is available from the CS Dept; these courses may also be used to satisfy the humanities/social science core requirements) (19 cr)
Electives to total 128 cr for the degree

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in computer science must earn a grade of C or better in each of the following courses before registration is permitted in upper-division computer science courses: CS 112, 113, 213, and 245, and Math 170, 175, and 176.

Technical and undesignated electives may be chosen from other disciplines to allow students to develop individualized programs to meet personal and career goals. A planned area of emphasis may be developed by the student with his or her advisor. This plan requires the approval of the CS faculty.

# Academic Minor Requirements

## COMPUTER SCIENCE MINOR

CS 112 Introduction to Problem Solving and Programming (3 cr)
CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
Math 176 Discrete Mathematics (3 cr)
Upper-division electives in computer science (6 cr)

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Computer Science. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. No 300-level course that is required in the B.S.C.S. curriculum may be used to satisfy the requirements of the graduate degree.

**Master of Science.** The following are requirements for receiving an M.S. degree in computer science from UI. There is both a thesis and a nonthesis option, though in both options the student must complete courses in the graduate CS core and in a focused plan of

study. In both options, the student must successfully complete at least 18 credit hours of 500-level courses and at least 18 credit hours of CS courses.

A graduate degree represents mastery of the theory underlying one's discipline, a graduate breadth requirement. This is the foundation on which further study should be based. The M.S. graduate candidate must successfully complete one class from at least three of the following categories: software architecture, hardware architecture, development processes, research foundations, and computer science theory. Check with the department for further details.

The student must acquire depth in at least one major area by developing a focused plan of study in consultation with the major advisor. This should be a program that investigates some aspect of computer science in depth, consistent with the goals of the graduate program in computer science. Some examples of areas currently of interest to the faculty are: computer security, software engineering, evolutionary algorithms and artificial intelligence, and fault tolerant computing.

The thesis option requires at least 30 credit hours of study. Specific requirements are: graduate breadth requirement (9 cr); at least one semester of CS Graduate Seminar, CS 501 (1 cr); focused plan of study (at least 14 cr); and research and thesis (at least 6 cr). The thesis must be in the approved format and must represent significant scholarly achievement. The thesis must be presented at a public colloquium.

The nonthesis option requires at least 36 credit hours of study. Specific requirements are: graduate breadth requirement (9 cr); at least one semester of CS Graduate Seminar, CS 501 (1 cr); and a focused plan of study (at least 26 cr), up to 6 credits of which can be CS 580. At the end of the program, nonthesis students must pass a comprehensive examination that covers their graduate studies.

**Doctor of Philosophy.** A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and supervisory committee. As a part of the program the student is required to include at least one semester of CS 501 (graduate seminar). The student must have at least one full semester of teaching experience, with the teaching assignment determined by the student's supervisory committee. There is no foreign language requirement. The student must satisfy the residency requirement by spending at least two terms at the Moscow campus or a suitable alternative approved by the student's graduate committee. The purpose of the residency requirement is to provide the student with access to facilities, faculty, and colleagues.

The qualifying examination is a written and/or oral examination, administered by the student's graduate committee, which covers fundamental areas of computer science. The preliminary examination is an examination with separate sections covering the material presented in the student’s program of study. The student must produce a dissertation, presenting an original, significant contribution to computer science. The dissertation should be publishable, in whole or in part, and should demonstrate the ability of the candidate to successfully initiate and pursue a significant, original research project. A public presentation and defense of the final dissertation is required.

# Education

**Jeanne S. Christiansen, Interim Dean (301 Educ. Bldg. 83844-3080; 208/885-6772); Jerry L. Tuchscherer, Associate Dean.**

The College of Education offers an M.Ed. degree with a major in educational technology as an interdisciplinary degree not directly aligned with a specific division within the college. It is designed to prepare candidates to be leaders in educational technology. Graduates with this degree will apply for jobs such as technology coordinator for districts and schools.

Applicants admitted to this program will already demonstrate a high level of technology literacy (hardware and operating systems) as well as prior hands-on experience with computers and educational systems (audiovisual systems; distance learning systems, e.g., microwave and compressed video; application software systems; and informational processing systems, e.g., word processing, databases, spreadsheets, presentations, and other application software systems). This will be demonstrated by the prerequisites or demonstrated competencies required. They will have demonstrated an interest in and an affinity for technology and a desire to move into leadership roles in this important area.

## Courses

See Part 6 for courses in Education (ED).

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Education. See the College of Graduate Studies section of Part 4 for the general requirements applicable to the degree.

**Master of Education.** General M.Ed. requirements apply. Determination of completion of prerequisites or equivalent (ITED 328, Computer Operating Systems for Technology, ITED 382, Computer Hardware Technology, and ED 328, Introduction to Educational Technology) will be determined by the major professor and the college technology coordinator. Graduate-level electives in technology will be approved by the student's committee based on the student's career goals and program requirements. Courses will be selected from graduate programs at UI or other graduate-level institutions offering technology courses. Courses approved will be selected from, but not necessarily limited to, the following academic areas: industrial technology, business, computer science, architecture, and communication. Students will either complete a written comprehensive examination or complete a special final evaluation project approved by the major advisor and the college technology coordinator.

# Department of Electrical and Computer Engineering

**Joseph J. Feeley, Dept. Chair (214 Buchanan Engr. Lab. 83844-1023; phone 208/885-6554; becky@ece.uidaho.edu; http://www.ece.uidaho.edu).** ***Faculty:*** **Touraj Assefi, David H. Atkinson, Boris R. Bracio, David P. Egolf, Joseph J. Feeley, James F. Frenzel, Karen Z. Frenzel, Herbert L. Hess, Gurdeep S. Hura, Brian K. Johnson, Joseph D. Law, Harry W. Li, Kenneth V. Noren, Dennis M. Sullivan, Richard W. Wall, Richard B. Wells, Bogdan M. Wilamowski, Jeffrey L. Young.**

The Department of Electrical and Computer Engineering offers degree programs in the closely related fields of electrical engineering and computer engineering. The electrical engineering program spans the subdisciplines of analog electronics, electric power, electromagnetics, computers, and communication and control systems. The computer engineering program focuses on the architecture, programming, and application of digital computers. Bachelor of Science, Master of Science, and Master of Engineering degrees are offered in both electrical engineering and computer engineering. The Doctor of Philosophy degree is offered in electrical engineering and encompasses research in both electrical and computer engineering.

The mission of the department is to educate students for the professional practice of electrical and computer engineering by offering undergraduate and graduate programs that encourage lifelong learning, foster teamwork and leadership, and promote creative discovery. The department is committed to maintaining the highest possible standards in teaching, scholarship, advising, and service.

The department uses a continuous improvement process to meet the electrical and computer engineering program objectives set forth below. Each of the broad program objectives is associated with a number of specific program outcomes that are measured by a variety of assessment tools. Programs are assessed annually to identify problems and initiate changes to ensure that program objectives are being met.

The department is proud of its 100-year history and its 2,500 alumni. Our graduates have become productive engineers and industrial and community leaders all over the nation and the world, and are actively recruited by major employers of electrical and computer engineers. The electrical engineering undergraduate program has been continuously accredited by the Engineering Accreditation Commission of the Accrediting Board of Engineering and Technology (ABET) (and its predecessor organization) since the national accreditation process was begun in 1936. The computer engineering undergraduate program was begun in 1988 and has been accredited since its first application for accreditation in 1996. Graduates of our program consistently score higher than the national average on the Fundamentals of Engineering examination administered by the National Society of Professional Engineers.

The department offices and laboratories are located in the Buchanan Engineering Laboratory and the Gauss-Johnson Laboratory on the Moscow campus. Courses are also offered through branch campuses located in Boise, Idaho Falls, and Coeur d'Alene, and through the Engineering Outreach program.

**Electrical Engineering Undergraduate Program.** Electrical engineering involves the application of electrical phenomena for the benefit of society. Electrical engineers design and use circuits and systems for computers, instruments, communications devices, and power conversion equipment.

The objectives of the electrical engineering program are to produce graduates who (a) have a sound foundation in the principles of science and mathematics and can apply these principles to the solution of technological problems; (b) understand, and are proficient in the use of, the modern theory, techniques, and tools used to solve problems in electrical engineering; (c) can design new products and solve new problems in electrical engineering, and can enhance their technical skills through lifelong learning; (d) can work and communicate effectively, either independently or in a team, to solve technological problems using engineering principles; and (e) have a sound understanding of the human and social ramifications of technological solutions and apply their engineering skills for the overall benefit of society.

Students in the electrical engineering program are assigned a faculty advisor upon entry into the program. The advisor helps the student prepare appropriate class schedules each semester and provides guidance on other academic and professional issues. Students can take an electrical engineering course in their freshman year that introduces them to the field and helps prepare them for further study. Required courses in the freshman year help develop a solid foundation in physics, chemistry, mathematics, and writing. Foundation courses in science, mathematics, and engineering are continued in the sophomore year, including the first two courses in electrical circuits. The junior year exposes the student to a wide variety of electrical engineering courses to develop breadth in electrical engineering knowledge and skills. In the senior year, students specialize in specific areas of electrical engineering through the choice of technical electives. Students also take a two-semester sequence of design courses where students learn to design, test, and build an electrical engineering circuit or system. Additional courses in the humanities, social sciences, and English help prepare the graduate to become a well-rounded and productive member of society.

**Computer Engineering Undergraduate Program.** Computer engineering involves the application of the principles of electrical engineering and computer science for the benefit of society. Computer engineers design and use digital computers for instrumentation, control, communication, and power conversion systems.

The objectives of the computer engineering program are to produce graduates who (a) have a sound foundation in the principles of science and mathematics and can apply these principles to the solution of technological problems; (b) understand, and are proficient in the use of, the modern theory, techniques, and tools used to solve problems in computer engineering; (c) can design new products and solve new problems in computer engineering, and can enhance their technical skills through lifelong learning; (d) can work and communicate effectively, either independently or in a team, to solve technological problems using engineering principles; and (e)

have a sound understanding of the human and social ramifications of technological solutions and apply their engineering skills for the overall benefit of society.

Students in the computer engineering program are assigned a faculty advisor upon entry into the program. The advisor helps the student prepare appropriate class schedules each semester and provides guidance on other academic and professional issues. In the freshman year, students take introductory courses in physics, mathematics, and computer science to help develop a solid foundation based on these fundamental areas. The sophomore year continues with more physics and mathematics, but also introduces the students to more advanced courses in computer science, computer engineering, and electrical circuits. The junior year provides breadth in several areas of electrical and computer engineering and computer science including electronics, signals and systems, computer architecture, software engineering, and operating systems. The senior year allows the student to develop some depth of knowledge in selected areas through a variety of technical elective courses. In addition, the student takes a two-semester sequence of design courses where students learn to design, test, and build a computer engineering system. Additional courses in the humanities, social sciences, English, and public speaking help prepare the graduate to become a well-rounded and productive member of society.

Note: In addition to college requirements for admission to classes (see "Admission to Classes" under College of Engineering, part four), students majoring in electrical engineering or computer engineering must pass a qualifying examination as prerequisite to any upper-division course in electrical engineering or computer engineering. Advisor's approval is required for admission to all EE and CoE courses. Finally, advisor and department chair approval is required to take CoE 480 and 481 during the summer session.

## Courses

See part 6 for courses in Computer Engineering (CoE) and Electrical Engineering (EE).

## Undergraduate Curricular Requirements

### COMPUTER ENGINEERING (B.S.Comp.E.)

Required course work includes the university requirements (see regulation J-3) and:

CoE 243 Digital Logic (3 cr)
CoE 244 Logic Circuit Lab (1 cr)
CoE 245 Computer Organization and Architecture (4 cr)
CoE 341 Digital Systems Engineering (3 cr)
CoE 361 Microcontrollers (4 cr)
CoE 480-481 Computer Systems Design Projects (6 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
CS 341 Computer Operating Systems (4 cr)
CS 381 Software Engineering (3 cr)
EE 210, 211 Electrical Circuits I and Lab (4 cr)
EE 212, 213 Electrical Circuits II and Lab (5 cr)
EE 316, 317 Electronics I and Lab (4 cr)
EE 350 Signals and Systems Analysis (4 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175 Analytic Geometry and Calculus I-II (8 cr)
Math 176 Discrete Mathematics (3 cr)
Math 310 Ordinary Differential Equations (3 cr)
Math 330 Linear Algebra (3 cr)
Phys 211, 212 Engineering Physics I-II (8 cr)
Stat 301 Probability and Statistics (3 cr)
Science elective selected from Chem 111, Ent 211, Geol 111, MMBB 154/155, or Phys 213 (4 cr)
Humanities and social sciences electives, incl at least (1) one upper-division course that is the second course completed in that subject, or (2) a course that has another humanities-social science course as a prerequisite (18 cr)
Technical electives selected from upper-division computer engineering, electrical engineering (except EE 441), and computer science courses (12 cr)

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in computer engineering must pass the EE certification examination as prerequisite to any upper-division course in computer and electrical engineering. A grade of C or better is required in each of the following courses before registration is permitted in upper-division computer science courses: CS 112, 113, 213, CoE 245, Math 170, 175, 176. A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: CoE 243, 244, EE 210, 212, Math 170, 175, 310, Phys 211, 212.

## ELECTRICAL ENGINEERING (B.S.E.E.)

Required course work includes the university requirements (see regulation J-3) and:

EE 210, 211 Electrical Circuits I and Lab (4 cr)
EE 212, 213 Electrical Circuits II and Lab (5 cr)
EE 243 Digital Logic (3 cr)
EE 244 Logic Circuit Lab (1 cr)
EE 292 Sophomore Seminar (0 cr)
EE 316, 317 Electronics I and Lab (4 cr)
EE 318, 319 Electronics II and Lab (4 cr)
EE 320 Electric Machinery (5 cr)
EE 330 Electromagnetic Theory (4 cr)
EE 350 Signals and Systems Analysis (4 cr)
EE 480-481 Senior Design (6 cr)
EE 491 Senior Seminar (0 cr)
Chem 111 Principles of Chemistry I (4 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
Engr 105 Engineering Graphics or EE/CoE 101 Foundations of Electrical and Computer Engineering (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Engr 360 Engineering Economy (3 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Math 330 Linear Algebra (3 cr)
Phys 211, 212 Engineering Physics I-II (8 cr)
Stat 301 Probability and Statistics (3 cr)
Upper-division engineering science elective chosen from Engr 320, 335, 350, or CE 402 (3 cr)
Humanities and social science electives, including at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite (18 cr)
Technical upper-division electives: at least 12 cr from EE courses, including 9 cr from three different bracketed groups as follows: EE [411, 416], [421, 424], [435], [440, 441, 443], [450, 452, 476], and [470, 477] (18 cr)

The minimum number of credits for the degree is 131, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in electrical engineering must earn and grade of P in EE 292 and a grade of C or better in each of the following courses before registration is permitted in upper-division electrical engineering courses: Chem 111, CS 112, EE 210, 211, 212, and 213, Engr 105, 210, and 220, Math 170, 175, 275, and 310, and Phys 211, 212. In addition to college requirements for admission to classes (see "Admission to Classes" under College of Engineering, part four), students majoring in electrical engineering or computer engineering must pass a qualifying examination as prerequisite to any upper-division course in electrical engineering or computer engineering.

Within the constraints on choice of technical electives noted above, students may choose sets of electives to develop proficiencies in certain areas of emphasis. Two such areas are currently available, one in communications and another in integrated circuit design. The course requirements for each of these areas are described below.

The **Communications** emphasis prepares students for a variety of careers in the communications industry. Students should take a total of 18 credits from the following: (a) core courses: 9 credits from EE 413/513, 435/535, 452, and (b) technical electives: 9 credits from EE 432, 443, 445, 455.

The **Integrated Circuit Design** emphasis prepares students for careers in the field of integrated circuit design. It includes courses in analog and digital integrated circuit at both the system and transistor level. Students should take a total of 18 credits from the following: (a) core courses: 12 credits from EE 411/511, 415/515, 440, 445, and (b) technical electives: 6 credits from EE 412/512, 413/513, 414/514, 416, 452, 470, 476, 486.

The **Power** emphasis prepares students for a variety of careers with electric utilities, consulting firms, and with manufacturing and design firms. It includes a core of courses in electrical engineering with an engineering science elective in either mechanical or civil engineering. Students should take a total of 18 credits from the following electrical engineering technical electives: (a) core courses: 9 credits from EE 421, 422, 424, and (b) technical electives: 6 credits from EE 443, 470, 476, plus 3 credits selected in consultation with a power faculty member, and (c) engineering science elective: 3 credits from CE 402, Engr 320, Engr 335.

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Electrical and Computer Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

## COMPUTER ENGINEERING

The Computer Engineering Program offers both Master of Science and Master of Engineering degrees. Both degrees may be earned through the Engineering Outreach off campus program. These advanced degrees offer engineering students an opportunity to strengthen their knowledge of computer engineering by taking graduate courses that focus on advanced subject matter and by participating in research.

**Qualifications for Admittance.** Candidates must have a bachelor's degree in computer engineering, with an undergraduate GPA of 2.80 or higher. International students who are required to take the TOEFL examination by the College of Graduate Studies must have a TOEFL score of at least 550. All candidates must submit scores from the general portion of the Graduate Record Examination.

Candidates who do not have a bachelor's degree in computer engineering may be admitted to the graduate program if, in addition to the requirements for candidates who have a B.S.Comp.E., they meet the following minimum requirements.

1. A bachelor's degree in electrical engineering, computer science, or another engineering discipline or in a supporting area of study such as mathematics or physics.

2. Demonstrated proficiency in the fundamentals of computer engineering emphasized in the undergraduate curriculum. Proficiency is demonstrated by successful completion of the following fundamental courses: Electronics (EE 316), Digital Logic (CoE 243), Computer Organization and Architecture (CoE 245), Data Structures (CS 213), Discrete Mathematics (Math 176), Differential Equations (Math 310), Linear Algebra (Math 330). Some deficiencies may be removed by taking background courses through Engineering Outreach. Students with undergraduate course deficiencies in the fundamentals of computer engineering must remove these deficiencies prior to admission for graduate work. Such deficiency courses cannot be used for graduate credit.

3. At least two advanced undergraduate courses in electrical engineering, computer engineering, or computer science from the following list: Computer Operating Systems (CS 341), Digital Systems Engineering (CoE 341 or EE 440). Students with undergraduate course deficiencies in the advanced areas of computer engineering must remove these deficiencies either prior to admission or in the first three semesters of graduate work. Such deficiency courses cannot be used for graduate credit.

**Master of Science.** To be approved, programs must satisfy both the university requirements governing the M.S. degree and must be enrolled in EE 591, Electrical Engineering Research Colloquium, during each semester of on-campus enrollment.

**Master of Engineering.** To be approved, programs must satisfy both the university requirements governing the M.S. degree and must be enrolled in EE 591, Electrical Engineering Research Colloquium, during each semester of on-campus enrollment.

## ELECTRICAL ENGINEERING

**Master of Science.** General M.S. requirements apply, except that the department requires at least 24 credits of course work in addition to a thesis. The master's program may provide advanced preparation for professional practice, or it may serve as the first step in graduate study leading to the Ph.D. degree. Specific courses to be taken for the program are not prescribed by the faculty. Students, with the assistance of their major professor, prepare their own program as soon as possible during their first semester, and submit it to the faculty for approval.

1. At least 18 credits in electrical engineering courses numbered 500 or above.

2. Two or more electrical engineering courses numbered above 500 in a given area for depth.

3. At least one course in each of two areas (outside the areas selected under item 2) to provide breadth.

4. Enrollment in EE 591, Electrical Engineering Research Colloquium, during each semester of on-campus enrollment.

**Master of Engineering.** General M.Engr. requirements apply, except that the department requires at least 30 credits of course work. Students, with the assistance of their major professor, prepare their own program as soon as possible during their first semester, and submit it to the faculty for approval. To be approved, programs must satisfy both the university requirements governing the M.Engr. degree and the following department requirements:

1. At least 18 credits in electrical engineering courses numbered 500 or above.

2. At least three electrical engineering courses in a given area for depth, two of which must be numbered 500 or above.

3. At least one course in each of two areas (outside the areas selected under item 2) to provide breadth.

4. Enrollment in EE 591, Electrical Engineering Research Colloquium, during each semester of on-campus enrollment.

**Doctor of Philosophy.** General Ph.D. requirements apply. The preliminary examination consists of both a written and an oral examination. There is no foreign language requirement. Two semesters of EE 591, Electrical Engineering Research Colloquium, will be required for on-campus doctoral students.

# Department of English

**David S. Barber, Dept. Chair (200 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6156; englishdept@uidaho.edu).**
***Faculty:*** **Douglas Q. Adams, David S. Barber, Kim M. Barnes, Mary Clearman Blew, Nancie E. Burns-McCoy, Steven R. Chandler, Richard J. Dozier, E. Phil Druker, Richard W. Fehrenbacher, Stephan P. Flores, Tina Foriyes, Candida Gillis, Karen Hallgren, Richard G. Hannaford, Walter A. Hesford, D'Wayne Hodgin, Sheri I. Hoem, Cheryl Johnson, Mary Ann Judge, Ronald E. McFarland, Kerry E. McKeever, Sheila O'Brien, Kurt O. Olsson, Joy Passanante, Teoman Sipahigil, Hao Sun, Gordon P. Thomas, Roger P. Wallins, Gary Williams, Robert A. Wrigley.**

English majors develop skills in writing, textual interpretation, and critical thinking as they study the nature of language and learn how Anglo-American literary traditions develop and relate to world literature. Majors study a wide range of authors, male and female, upper class and working class, white and minority. They learn the formal qualities of texts as well as their historical and cultural contexts. Students write extensively in all courses and gain speaking experience through oral reports and class discussions. (For this reason, international students should have a TOEFL score of 560 or above.)

The early phases of the program emphasize literary traditions (Engl 257, 258, 341, 342, 343, 344), reading skills and textual analysis (especially Engl 210 and 295), and the study of Shakespeare (Engl 345). Advanced courses allow students to pursue individual interests in literature, expository and creative writing, literary criticism and theory, and linguistics.

Through requirements, course offerings, and advising, the Department of English encourages students to plan their curricula according to personal and career goals. Aspiring poets and novelists emphasize creative writing courses; film scholars take courses in film; future teachers of English as a Second Language (ESL) study linguistics; pre-professionals of all kinds take advanced writing courses. Those heading for graduate school in literature, linguistics, or ESL choose courses that prepare them for graduate study in their area. English majors who intend to teach English in secondary schools plan their program to satisfy state certification requirements (see "Secondary School Teaching Certification for Majors Outside the College of Education" in the College of Education section in part 4).

To enable students to focus on such interests within a coherent program of study, the English Department offers the choice of four emphases within the major: literature, creative writing, preprofessional, and teaching.

The Department of English offers four graduate degrees at the master's level: the M.F.A, the M.A., the M.A.T., the M.A. in Teaching English as a Second Language. Through course selection and choice of thesis topic, and with the approval of appropriate faculty members, students pursuing the M.A. may emphasize literary studies or studies in composition/rhetoric. Through course selection and choice of thesis topic, and with the approval of appropriate faculty members, those pursuing the M.F.A. may emphasize fiction, poetry, or creative nonfiction. Students planning to work for the M.F.A., M.A.. or M.A.T. should be well prepared through the curriculum outlined below. The MFA also offers students the tools to work and teach as literary writers. Those planning to pursue the M.A. in Teaching English as a Second Language should take extra course work in linguistics.

The purpose of the graduate program in English is to enable students to acquire a broad background in English and American language and literature and to develop specialized skills in independent, scholarly research and in mature, original criticism of literary works, to hone their skills as creative writers, or to deal with the theoretical and practical issues pertaining to English as a second language. The graduate program in English serves those who plan to teach English at junior or community colleges, those who plan to teach English at the secondary level, those who plan to seek employment in business, commerce, industry, or government, and those who plan to pursue the Ph.D.

For admission to the graduate program in English, the student must have a bachelor's degree with a major in English or equivalent preparation and should have an overall grade-point average of 3.00 (on a 4.00 scale) to be granted full admission. Non-native speakers of English must score at least 560 on the TOEFL exam.

## Courses

See part 6 for courses in English (Engl).

## Undergraduate Curricular Requirements

### ENGLISH (B.A.)

Where specific courses are listed with the area requirements, the department may approve equivalencies.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and one of the following emphases:

**LITERATURE EMPHASIS**

Engl 210 Reading - Writing - Texts (3 cr)
Engl 257-258 Literature of Western Civilization (6 cr)
Engl 295 Seminar in Literary Studies (3 cr)
Engl 341-342 Survey of British Literature (6 cr)
Engl 343-344 Survey of American Literature (6 cr)
Engl 345 Shakespeare (3 cr)
400-level courses in literature before 1800 (3 cr)
Courses in linguistics (3 cr)
English electives selected in consultation with advisor (at least 12 cr at the 400 level other than Engl 402 or 498) (18 cr)
Related field approved by advisor (20 cr)

**CREATIVE WRITING EMPHASIS**

Engl 210 Reading - Writing - Texts (3 cr)
Engl 257-258 Literature of Western Civilization (6 cr)
Engl 291-292 Creative Writing: Poetry and Fiction (6 cr)
Engl 341-342 Survey of British Literature (6 cr)
Engl 343-344 Survey of American Literature (6 cr)
Engl 345 Shakespeare (3 cr)
Engl 391 and/or 392 Creative Writing: Poetry and Fiction (3-6 cr)
Engl 491 or 492 Advanced Creative Writing: Poetry or Fiction (3 cr)
400-level English courses in literature in any period (3 cr)
400-level English courses in literature before 1800 (3 cr)
Elective writing courses chosen from Engl 309 (may not be repeated), 404, 491, 492 (may be repeated); 498 (Internship: Editing of Literary Journal, may be repeated up to a maximum of 3 cr) (6-9 cr)
Related field approved by advisor (20 cr)

**PREPROFESSIONAL EMPHASIS**

Engl 210 Reading - Writing - Texts (3 cr)
Engl 257-258 Literature of Western Civilization (6 cr)
Engl 341 or 342 Survey of British Literature (3 cr)
Engl 343 or 344 Survey of American Literature (3 cr)
Two writing courses chosen from Engl 207, 208, 209, 309, 313, 317 (6 cr)
Elective English courses (at least 9 cr at the 400 level other than Engl 402 or 498) (15 cr)
Courses outside the English Dept appropriate to student's career goals (at least 9 upper-div cr) (15 cr)
Related field OR academic minor appropriate to student's career goals (at least 9 upper-div cr) (20 cr)

The preprofessional emphasis is an individualized program for students wishing to stress preparation for professions such as law, writing and editing, government service, and business. All course decisions are to be made in consultation with the student's English advisor and require the advisor's approval.

**TEACHING EMPHASIS**

Engl 210 Reading - Writing - Texts (3 cr)
Engl 257 or 258 Literature of Western Civilization (3 cr)
Engl 341 or 342 Survey of British Literature (3 cr)
Engl 343-344 Survey of American Literature (6 cr)
Engl 345 Shakespeare (3 cr)
Engl 445 Literature for Adolescents (3)
300- or 400-level literature by minority/ethnic writers (3)* (May be taken concurrently with EdTE 485, Internship)
300- or 400-level literature elective (3)*
Engl 441 Intro. to the Study of Language (3)
Engl 201 English Grammar, Key Concepts and Terms (1)
Two linguistics courses chosen from Engl 442, 443, 496 (6) (443 may be taken concurrently with EdTE 485, Internship)
One creative writing course from Engl 208, 291, 292, or 293 (3)
Engl 309 Advanced Prose Writing (3)
Engl 401 Writing Workshop for Teachers (2)
Engl 403 Teaching Writing in Secondary Schools (3) (Must be taken concurrently with EdTE 485, Internship)
Elective, any level, selected in consultation with advisor (3)

*At least one of these courses must be 400-level

**TEACHING CERTIFICATION**
L&S English majors wishing secondary teaching certification must complete the appropriate English and education courses listed in the "Teaching Majors and Minors" in the Division of Teaching Learning & Leadership section of this catalog. Students should plan their programs with their English advisor; they should also see a College of Education advisor regarding certification requirements.

# Academic Minor Requirements

## ENGLISH MINOR

Engl 210 Reading - Writing - Texts (3 cr)
Two of the following courses (6 cr)
- Engl 341-342 Survey of British Literature
- Engl 343-344 Survey of American Literature

Four English courses chosen from Engl 295 and any course at the 300 or 400 level, excluding nonmajors courses; at least two must be literature courses, and at least one must be at the 400 level (12 cr)

## TEACHING ENGLISH AS A SECOND LANGUAGE MINOR

Engl 404 Special Topics: ESL Methods or EDTE 474 Secondary School Foreign Language Methods (3 cr)
Engl 441 Introduction to the Study of Language (3 cr)
Engl 442 Introduction to English Syntax (3 cr)
Anth/Soc 322 Racial and Ethnic Relations or Anth 261 Language and Culture (3 cr)
ED 314 Strategies for Teaching (3 cr)
Electives chosen from among other courses in English language and linguistics or from Anth 261 or 322 if not chosen above (6 cr)

## WRITING MINOR

One of the following courses (3 cr):
- Engl 207 Persuasive Writing
- Engl 208 Personal and Exploratory Writing
- Engl 209 Inquiry-Based Writing

Two of the following courses (if not taken above) (6 cr0:
- Engl 207 Persuasive Writing
- Engl 208 Personal and Exploratory Writing
- Engl 209 Inquiry-Based Writing
- Engl 210 Reading - Writing - Texts
- Engl 291 Creative Writing: Poetry
- Engl 292 Creative Writing: Fiction
- Comm 121 Media Writing

Three of the following courses (9 cr)
- Engl 309 Advanced Prose Writing
- Engl 313 Business Writing
- Engl 317 Technical Writing
- Engl 391 Intermediate Poetry Writing
- Engl 392 Intermediate Fiction Writing
- Engl 491 Advanced Creative Writing: Poetry
- Engl 492 Advanced Creative Writing: Fiction
- Engl 498 Internship (for a maximum of 3 credits)
- Comm 425 Feature Article Writing

Engl 404 Special Topics: Studies in Rhetoric and Writing (3 cr)

The Writing Minor is not open to English majors.

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of English. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Arts.** Of the minimum of 33 credits required for the degree, at least 24 credits must be earned in the Department of English at the University of Idaho, and of these no more than nine credits earned at the Grace Nixon Summer English Institute may be applied to the degree. At least 27 credits must be at the 500s level. Course work for the M.A. in English is normally at the 500s level; however, up to six credits of work at the 400s level may be included, but only with the approval of the student's major professor and the department's director of graduate studies. Students are allowed to take 3 credits maximum in practicums applying toward the degree.

Students and their major professors and committees will design their programs.

Each candidate for the Master of Arts degree will complete a thesis. The student will complete 27 credits of course work and submit an acceptable thesis, for which a maximum of six credits may be obtained.

Theses may address topics in literature and literary criticism or composition and rhetorical theory.

Candidates for the master's degree in English are required to demonstrate reading proficiency in one of the following languages: French, German, Italian, Latin, Classical Greek, Spanish, or Russian.

Each student will take an M.A. examination following completion of the thesis in acceptable form, as confirmed by the thesis director. The oral examination will be designed to test the student's ability to defend his or her thesis articulately with respect to research methodology, critical perspective, and applicability to related work in the area.

**Master of Arts in Teaching.** The M.A.T. is a nonthesis degree designed for teachers who are certified in English and who wish to strengthen their English preparation and improve their teaching effectiveness.

Of the minimum of 33 credits required for the degree, at least 24 must be earned in the UI Department of English, and at least 24 credits must be at the 500 level (or equivalent, in the case of transfer credits). The remaining course work in English may be at either the 400 or 500 level (300-level courses are not acceptable toward the M.A.T. in English). Six credits must be taken in professional courses in education taught by the UI College of Education or equivalent college of education; at least 3 credits must be earned in a standard university course, as opposed to district in-service workshops. The student earns 3 credits for the M.A.T. teaching project. The combined number of credits earned in English in another graduate school or through correspondence study may not exceed nine; the College of Education may accept such credits in the professional courses in education at its discretion.

Area requirements for the degree, which may have been satisfied prior to enrolling in the M.A.T. program, include an upper-division or graduate course in each of the following areas: medieval through 18th-century literature, romantic through modern British literature; early American literature (before Civil War); later American literature; linguistics; history of the English language (or a second linguistics course); literature of women, minorities, third-world cultures, or non-dominant discourses. In addition, students must complete, or have completed within five years prior to enrolling in the M.A.T. program, course work in these areas: literary criticism; theory/practice of teaching literature to adolescents; theory/practice of teaching writing (may be satisfied by a Northwest Inland Writing Project course taken during the summer in a 3-credit or larger block). There is no language requirement for the M.A.T.

**Master of Arts in Teaching English as a Second Language.** The M.A. in TESL is intended for students who are interested in learning to teach English as a second language. The curriculum provides both theoretical background and practical training in the field. Students take course work in theoretical and applied linguistics and in teaching methods.

Of the minimum of 33 credits required for the degree, at least 24 must be earned while enrolled in residence at UI. At least 12 credits are to be taken from approved courses in language and linguistics, 12 credits are to be taken from approved courses in pedagogy (at least 9 of these credits are to be from English department courses), and 9 credits are to be taken from approved electives in English and education. At least 21 credits must be earned in courses numbered 500 and above.

TESL students will write either a thesis in addition to 27 credits of classes or take 33 credits of classes.

Native speakers of English in the TESL program must complete or have completed two years of college work (or its equivalent) in a modern foreign language. They must have studied a foreign language for at least one semester (or equivalent) within the preceding five years. Non-native speakers of English are excused from this requirement.

In the second year candidates will take a comprehensive examination on linguistics, pedagogy and TESL theory, and teaching methodology.

**Master of Fine Arts.** The M.F.A. is the terminal degree for those wishing to teach creative writing at the college or university level; it is also among the credentials expected of those seeking employment in arts administration, editing, and related fields. The curriculum provides theoretical and practical training in fiction, poetry, creative nonfiction, and editing and publishing.

The program's principle aim is to teach aspiring writers their craft and at the highest possible level. We gladly speak to students about publishing their work, or about teaching or editing, but our first concern is teaching and learning the craft of writing. While we encourage applicants to *apply only in one genre*, once they are admitted, we encourage them to "cross-pollinate": we like to see poets working at narrative pacing in a fiction or nonfiction class, and we like to see the prose writers attentive to individual syllables in poetry. We encourage students to experiment and to push themselves in new directions. We also insist that they know where they fit in the continuum of writers, and that they understand and can speak with conviction of where they might place themselves in any of several literary traditions.

Of the minimum 54 credits required for the degree, at least 15 are to be taken in graduate-level literature (which may include ENGL 506); 15 in graduate-level creative writing courses; 3 in workshops taught by Distinguished Visiting Writers; 3 from a graduate-level course outside of English; 3 in a Techniques course (ENGL 581, 582, or 583); 6 elective credits; and 9 in thesis. A minimum of four semesters in residence is required.

The thesis will take the form of a collection of poetry, short stories, creative nonfiction, or novel, and will be prefaced by an introduction. Upon completion of the thesis in acceptable form, each student will take an oral examination designed to test the student's ability to discuss articulately his or her creative process, intellectual and creative influences, chosen genre, aesthetic perspective, design, and intent.

Students who enter the program with advanced work in creative writing at the undergraduate level will ordinarily take only 500-level courses in English. Those who have not completed an advanced undergraduate course in one of the three major genres (fiction, poetry, creative nonfiction) will in addition to the above ordinarily take advanced undergraduate courses, as advised by the director of creative writing.

# Program in Environmental Engineering

**Margrit von Braun, Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail envе@uidaho.edu; http://www.uidaho.edu/enve).**

**Department of Biological and Agricultural Engineering, Charles L. Peterson, Interim Dept. Head (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; email baengr@uidaho.edu).** ***Faculty:*** **Jan Boll, Barbara C. Williams, Brian He, Thomas F. Hess, Russell J. Qualls.**

**Department of Chemical Engineering, Wudneh Admassu, Chair (312 Buchanan Engineering Lab. 83844-1021; phone 208/885-6793; email jrattey@uidaho.edu).** ***Faculty:*** **D. Eric Aston, David C. Drown, Roger A. Korus, Vivek Utgikar, Margrit von Braun.**

**Department of Civil Engineering, Sunil Sharma, Interim Chair (104 Buchanan Engineering Lab. 83844-1022; phone 208/885-6782; email loisp@uidaho.edu).** ***Faculty:*** **Fritz R. Fiedler, Jim Liou, Howard S. Peavy, P. Steven Porter, Alfred T. Wallace.**

Environmental engineering is a specialty of engineering focused on identifying and designing solutions for environmental problems. Major areas include air pollution control, water and wastewater treatment, hazardous waste management, and pollution prevention. Environmental engineers have the technical and scientific knowledge to identify, monitor, design, build, and operate systems that protect the environment from damage and correct existing problems. Environmental engineers typically work in consulting firms, industries, state and federal agencies, universities, or waste treatment companies.

Graduate environmental engineering education builds on traditional engineering components, typically found in departments of biological and agricultural, civil, and chemical engineering. The breadth and multidisciplinary nature of environmental problems requires that environmental engineers possess skills beyond those normally associated with a single engineering field. Knowledge in geology, hydrology, soil science, computers, microbiology and water, atmospheric chemistry, and other disciplines provides breadth to enhance technical skills. Good communication skills are also essential.

The College of Engineering offers M.S. (thesis) and M.Engr. (nonthesis) environmental engineering (EnvE) degrees at the Moscow and Idaho Falls campuses. The interdisciplinary program combines the resources of three departments (Biological and Agricultural Engineering, Chemical Engineering, and Civil Engineering) to provide a solid design-based environmental engineering curriculum. Environmental engineering research is actively supported both externally and by several interdisciplinary centers on campus including the Idaho Water Resources Research Institute, the Center for Hazardous Waste Remediation Research, the Environmental Research Institute, and the National Center for Advanced Transportation Technology. The College of Engineering collaborates with environmental engineering faculty from Washington State University, located just eight miles west of Moscow, in research, cooperative courses, and seminars. The Idaho Falls program is coordinated with Idaho State University's master's program in environmental engineering.

Admission to the program is based on: ability to complete graduate-level work evidenced by undergraduate transcripts; the applicant's statement of research and career objectives; the compatibility of the student's objectives with faculty expertise and program objectives; and availability of graduate faculty to act as major advisor for the applicant. The GRE, applicant's statement of objectives, and three letters of recommendation are required. Students without backgrounds in engineering may be admitted after certain undergraduate deficiencies are completed.

Financial assistance, in the form of research and teaching assignments with out-of-state tuition waivers, is available. The normal matriculation period is 18 to 21 months. A broad range of opportunities for research includes water quality engineering, hazardous waste management, water and wastewater treatment, bioremediation, ground and surface water resources, air pollution control, and energy conservation.

## Courses

See part 6 for courses in Environmental Engineering (EnvE).

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** General M.S. requirements apply in addition to courses listed below. A minimum of 30 credits is required, including 6 credits of thesis research.

**Master of Engineering.** General M.Engr. requirements apply in addition to courses listed below. A minimum of 33 credits is required for graduation, including 3 credits of research that is not directly related to a thesis.

A common set of core courses is required in both programs as follows:

BAE 532 Bioreactor Theory and Design for Waste Treatment or CE ID&WS534 Environmental Engineering Unit Processes (3 cr)
Chem 418 Environmental Chemistry (3 cr)
CE ID&WS531 Environmental Engineering Unit Operations (3 cr)
ChE/EnvE 570 Hazardous Waste Management (3 cr)
ChE ID&WS575 Air Pollution Control (3 cr)
EnvE 500 Master's Research and Thesis (6 cr) or 599 Research (3 cr).

In addition to the core, the student will select supporting courses based on career objectives to add depth to his or her curriculum. A minimum of 9 to 15 credits (for the thesis or nonthesis option, respectively) must be selected by the student with the concurrence of his or her advisor and committee. The following is a partial list of typical supporting courses:

BAE 533 Bioremediation
BAE 551 Advanced Hydrology
BAE ID&WS552 Environmental Water Quality
BAE 558 Fluid Mechanics of Porous Materials
CE/EnvE 435 Hazardous Waste Engineering
CE 522 Hydraulic Design
CE /EnvE 532 Design of Water and Wastewater Systems II
CE/EnvE 533 Water Quality Management
ChE/EnvE 560 Biochemical Engineering
ChE/EnvE 578 Treatment of Hazardous Chemical Waste
ChE/EnvE 579 Hazardous Waste Site Remediation Design
ChE/EnvE 580 Engineering Risk Assessment for Hazardous Waste Evaluations
Geol 309 Groundwater
Hydr 563 Hydrogeology

Fundamental knowledge contained in some lower-division courses is essential to the program. Students who have not taken these, or similar, courses will be required to remove these deficiencies. Some of these deficiency courses must be completed before admission; others may be incorporated into the student's required program. Minimum prerequisite courses include:

BAE 351 Hydrology
CE 330 Fundamentals of Environmental Engineering
ChE 223 Material and Energy Balances
Chem 112 Principles of Chemistry II
Engr 320 Engineering Thermodynamics and Heat Transfer
Engr 335 Engineering Fluid Mechanics
Engr 360 Engineering Economy or ChE 453 Chemical Process Analysis and Design
Math 310 Ordinary Differential Equations
Stat 301 Probability and Statistics

An EnvE faculty committee evaluates deficiencies and makes recommendations for students entering the program without an undergraduate degree in engineering.

# Program in Environmental Science

**Margrit von Braun, Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail envs@ uidaho.edu; http://www.uidaho.edu/envs).**

***Biological Science Option Faculty:*** **Steven N. Austad, David H. Bennett, Jan Boll, Jeffrey H. Braatne, Steven J. Brunsfeld, Stephen C. Bunting, Alton G. Campbell, Allan B. Caplan, Stephen P. Cook, Donald L. Crawford, Ronald L. Crawford, Maxine E. Dakins, Brian C. Dennis, Sanford D. Eigenbrode, C. Michael Falter, Edward O. Garton, Paul E. Gessler, Thomas F. Hess, James B. Johnson, Karen L. Launchbaugh, Robert L. Mahler, John D. Marshall, Joseph P. McCaffrey, Penelope Morgan, Matthew J. Morra, Kerry P. Reese, Ronald Robberecht, Dennis L. Scarnecchia, J. Michael Scott, Molly W. Stock, Lisette P. Waits, R. Gerald Wright, Robert S. Zemetra.**

***Physical Science Option Faculty:*** **Valerie E. Chamberlain, I. Francis Cheng, Jerry P. Fairley, Fritz R. Fiedler, T. Rick Fletcher, Dennis J. Geist, Mickey E. Gunter, John E. Hammel, Karen S. Humes, Gary S. Johnson, Paul A. McDaniel, Jeanne L. McHale, Leland L. Mink, Gregory Moller, Michael J. Nicholl, John S. Oldow, James L. Osiensky, Howard S. Peavy, Batric Pesic, P. Steven Porter, Keith A. Prisbrey, Russell J. Qualls, Daniel G. Strawn, Margrit von Braun, Ray von Wandruszka, Chien M. Wai, Von P. Walden, Barbara Cooke Williams, Scott A. Wood.**

***Social Science Option Faculty:*** **Katherine G. Aiken, Rula Z. Awaad-Rafferty, Stephen C. Cooke, Donald W. Crowley, Stephen R. Drown, E. Philip Druker, Jo Ellen Force, Rodney P. Frey, Katherine Paxton George, Dale D. Goble, Bruce T. Haglund, Joel R. Hamilton, Charles C. Harris, Steven J. Hollenhorst, Harley E. Johansen, Douglas Lind, Gary E. Machlis, Jon R. Miller, Michael R. L. Odell, Julia D. Parker, Gundars Rudzitis, Nick Sanyal, Arthur D. Smith, Jr., Jerry L. Wegman, Patrick R. Wilson, J. D. Wulfhorst.**

The Environmental Science Program offers B.S. and M.S. degrees that emphasize the importance of an interdisciplinary approach for students committed to studying and solving environmental issues. The multi-disciplinary faculty represents all colleges at the university and includes soil scientists, engineers, geographers, biologists, ecologists, political scientists, sociologists, chemists, and hydrologists.

Career opportunities in the environmental sciences are diverse and numerous. Graduates are employed in the private and public sectors in areas such as natural resource management, pollution prevention, air and water quality monitoring, hazardous waste management, environmental and land use planning, and environmental regulation and compliance.

The curriculum leading to the B.S. degree in environmental science offers students the opportunity to combine studies in several disciplines and professional fields in order to gain an understanding of the complex nature of environmental problems. In addition to understanding relationships among traditional disciplines, the program creates an integrated and coherent approach to environmental problem solving.

The curriculum includes the university core (general education) requirements, a common set of required courses and electives for all environmental science majors, and the student's choice of one of three options. The required courses and electives for all majors are designed to build a strong base of knowledge in biological, physical, and social sciences, supplemented by a set of electives, in consultation with an environmental science advisor, from four areas (ecology, natural resource economics and sociology, management, and social sciences). All students complete a senior project as part of their course of study.

Three option areas are offered: biological science, physical science, and social science.

Graduate training in the Environmental Science Program provides students with the opportunity to specialize in one of six primary areas: ecology/biological science, waste management, earth science/hydrology, natural resource management, physical science, and policy and law.

Admission to the graduate program is based on: ability to complete graduate-level work evidenced by undergraduate transcripts; the applicant's statement of research and career objectives; the compatibility of the student's objectives with faculty expertise and program objectives; and availability of graduate faculty to act as major advisor for the applicant. The GRE, applicant's statement of objectives, and three letters of recommendation are required. Students without backgrounds in environmental science may be admitted after certain undergraduate deficiencies are completed.

Questions regarding either the B.S.Env.S. or M.S. programs should be directed to the program coordinator (208/885-6113).

## Courses

See part 6 for courses in Environmental Science (EnvS).

# Undergraduate Curricular Requirements

## ENVIRONMENTAL SCIENCE (B.S.Env.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

EnvS 101 Introduction to Environmental Science (3 cr)
EnvS 102 Field Activities in Environmental Sciences (1 cr)
EnvS 200 Sophomore Seminar (2 cr)
EnvS 400 Seminar (1 cr)
EnvS 497 Senior Research and Thesis (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Chem 111 Principles of Chemistry I (students in social science option may substitute Chem 101) (4 cr)
Comm 101 Fundamentals of Public Speaking or 3-4 cr in foreign language courses (2-4 cr)
Engl 317 Technical Writing (3 cr)
Phil 452 Environmental Philosophy (3 cr)
Stat 251 Principles of Statistics (3 cr)
Advisor-directed breadth electives, incl at least one course from the first four areas (24 cr):

- Ecology
  - Biol 314 Ecology and Population Biology
  - For/Rnge/WLF 221 Natural Resources Ecology
  - MMBB 425 Microbial Ecology
- Natural Resource Economics and Sociology
  - AgEc 467 Economics of Rural Community Development
  - Anth 220 Peoples of the World
  - Econ 385 Environmental Economics
  - For 235 Society and Natural Resources
  - RRT 383 Amenity Resource Econ for Environmental Policymaking
- Management
  - ChE 470 or EnvS WS445 Hazardous Waste Management
  - Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
  - For 484 Forest Policy and Administration
  - Geog 420 Land, Resources, and Environment
  - Geog 427 Decision-Making in Resource Management
  - Geog WS444 Environmental Assessment
  - RRT 486 Public Involvement in Natural Resource Mgt
  - WLF 493 Environmental Law
- History, Philosophy, and Political Science
  - Hist 424 American Environmental History
  - Phil 250 Introduction to Philosophy of Science
  - Phil 350 Philosophy of Biology
  - PolS 461 Western Environmental Legal History
  - PolS 464 Politics of the Environment
  - RRT 489 Personalities and Philosophies in Conservation
- Technical
  - Biol 213 Principles of Biological Structure and Function
  - Chem 253 Quantitative Analysis
  - Chem 275 Carbon Compounds or Chem 277 and 372 Organic Chemistry
  - Chem 302 Principles of Physical Chem or 305-306 Physical Chem
  - Chem 303 Principles of Physical Chem Lab
  - Chem J318/J418 Environmental Chemistry
  - EnvS WS210 Microcomputer Models of Environmental Systems
  - EnvS R471 Waste Treatment Technologies
  - EnvS 479 Introduction to Environmental Regulation
  - EnvS 498 Internship (1-3 cr)
  - For 472 Remote Sensing of Environment
  - Geog 301 Meteorology or 401 Climatology
  - Geog 385 GIS Primer
  - Geol 309 Groundwater
  - Geol 361 Geology and the Environment
  - Math 175 Analytic Geometry and Calculus II
  - Math 275 Analytic Geometry and Calculus III
  - MMBB 380 Introductory Biochemistry
  - Phys 111 General Physics I or 211 Engr Physics I
  - Phys 112 General Physics II or 212 Engr Physics II
  - Soil 205 General Soils

And one the following options:

**A. BIOLOGICAL SCIENCE OPTION**

This option is suitable for students wishing to pursue technically oriented careers in environmental professions such as natural resource management, bioremediation, and environmental impact analysis.

Chem 112 Principles of Chemistry II (5 cr)
Geog 100 Physical Geography or Geol 101 Physical Geology (4 cr)
Math 170 Analytic Geometry and Calculus I or 160 Survey of Calculus (4 cr)
MMBB 250 General Microbiology (5 cr)
Advisor-approved depth electives--include all the courses from at least two of the following areas (20 cr):

- Plant Protection
  - Ent 322 Economic Entomology or 491 Principles of Insect Pest Mgt
  - PlSc 338 Weed Control
  - PlSc 405 Plant Pathology
  - Soil 446 Soil Fertility
- Animal Ecology
  - WLF 314 Wildlife Ecology I
  - WLF 315 Wildlife Ecology I Laboratory
  - WLF 316 Wildlife Ecology II
  - WLF 448 Fish and Wildlife Population Ecol or 440 Conservation Biol
- Aquatic Ecology
  - Fish 314 Fish Ecology
  - Fish 415 Limnology
  - Fish 430 Riparian Ecology and Management
- Forest and Range Systems
  - For 306, 307 Wildland Resource Conservation and Lab
  - For 330 Forest Ecosystem Processes
  - For 426 Wildlife Fire Management and Ecology
  - For 465 Forest Protection
- Soils
  - Soil 437 Soil Biology
  - Soil 438 Pesticides in the Environment
  - Soil 446 Soil Fertility
- Water (take at least 4 of the 6 courses)
  - BAE 351 Hydrology
  - EnvS 404 ST:Drinking Water Quality
  - For 462 Watershed Management
  - Geol 309 Groundwater
  - Geol 410 Techniques of Groundwater Study
  - Geol 468 The Geochemistry of Natural Waters
- Environmental Regulation
  - Geog 420 Land, Resources, and Environment
  - Geog WS444 Environmental Assessment or Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
- Decision Making Tools
  - For 472 Remote Sensing of Environment
  - Geog 385 GIS Primer
  - LArc 490 Computer-Aided Regional Landscape Planning
- Environmental Chemistry
  - Chem 318 Environmental Chemistry
  - Ent 438 Pesticides in the Environment
  - FST 409 Principles of Environmental Toxicology

Electives to total 128 credits for the degree

**B. PHYSICAL SCIENCE OPTION**

This option is suitable for students wishing to pursue technical careers in environmental professions such as air, soil, and water pollution abatement, hazardous waste management, waste minimization, and ecological restoration.

Chem 112 Principles of Chemistry II (5 cr)
Geog 100 Physical Geography (4 cr)
Geol 101 Physical Geology (4 cr)
Math 170 Analytic Geometry and Calculus I or 160 Survey of Calculus (4 cr)
Advisor-approved depth electives – meet requirements of at least two of the following areas (20 cr):

- Water (take at least 4 of the 6 courses)
  - BAE 351 or CE 321 Hydrology
  - EnvS 404 ST:Water Science
  - For 462 Watershed Management
  - Geol 309 Groundwater
  - Geol 410 Techniques of Groundwater Study

Geol 468 The Geochemistry of Natural Waters
Chemistry
Chem J318/J418 Environmental Chemistry
Chem 454 Instrumental Analysis
FST 409 Principles of Environmental Toxicology
MMBB 380 Introductory Biochemistry
Hazardous Waste
ChE 470 or EnvS WS445 Hazardous Waste Management or BAE 433 Bioremediation or Met 406 Treatment Technology for Recycled Waste or EnvS R472 Remediation Technologies and Project Implementation
ChE 480 Engineering Risk Assessment for Hazardous Waste Evaluations
FST 409 Principles of Environmental Toxicology
Geology (take at least 4 of the 5 courses)
Geol 335 Geomorphology
Geol 360 Geologic Hazards
Geol 423 Principles of Geochemistry
Geol 468 The Geochemistry of Natural Waters
Geop 422 Principles of General Geophysics
Statistics
GeoE 428 Geostatistics
Stat 401 Statistical Analysis
Stat 422 Sample Survey Methods
Mathematics
Math 175 Analytic Geometry and Calculus II
Math 275 Analytic Geometry and Calculus III
Math 310 Ordinary Differential Equations
Math 330 Linear Algebra
Soils (take at least 3 of the 4 courses)
Soil 415 Soil Physics
Soil 419 Solute Transport in Porous Media
Soil 422 Environmental Soil Chemistry
Soil 454 Soil Development and Classification
Economics and Management
Econ 385 Environmental Economics
For 472 Remote Sensing of Environment
Geog/LArc 385 GIS Primer
Geog WS444 Environmental Assessment or Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
Electives to total 128 credits for the degree

**C. SOCIAL SCIENCE OPTION**

This option is suitable for students wishing to pursue careers in environmental professions such as environmental regulation, land use planning, environmental administration, and as a pre-law program for environmental law.

Geog 100 Physical Geography (4 cr)
Geol 101 Physical Geology (4 cr)
Math 137 Algebra with Applications or 143 Pre-calculus Algebra and Analytic Geom (3 cr)
Advisor-approved depth electives chosen from the following (20 cr):
Business and Economics
AgEc 451 Land and Natural Resource Economics
Bus 314 World of Corporate Business
Econ 385 Environmental Economics
For 383 Economics for Natural Resource Managers
RRT 383 Amenity Resource Econ for Environmental Policymaking
Conflict Resolution/Communication
Comm 331 Conflict Management
Comm 332 Communication and the Small Group
RRT 486 Public Involvement in Natural Resource Mgt
RRT 494 Natural Resources Communication
History
Hist 423 Idaho and the Pacific Northwest
Hist 424 American Environmental History
Hist 428 History of the American West
Law
Phil 434 Philosophy of Law
PolS 452 Administrative Law and Regulation
PolS 461 Western Environmental Legal History
WLF 493 Environmental Law
Literature
Engl 473 Literature of the American West
RRT 489 Personalities and Philosophies in Conservation

Planning and Policy
- Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
- For 484 Forest Policy and Administration
- Geog 360 Population Dynamics and Distribution
- Geog 420 Land, Resources, and Environment
- Geog 427 Decision-Making in Resource Management
- Geog WS444 Environmental Assessment
- LArc 480 Issues for the Emerging Landscape
- PolS 439 Public Policy
- PolS 462 Natural Resource Policy

Science Writing
- Comm 422 Science Communication
- Comm 425 Feature Article Writing
- Engl 309 Advanced Prose Writing

Electives to total 128 credits for the degree

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Program in Environmental Science. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** Each student will design a study plan in consultation with an advisor and a thesis committee. The study plan is subject to approval by the director and the Graduate College.

The basic requirements for the M.S. degree in environmental science include (1) Breadth requirement: A minimum of 2 courses (6 cr) selected from option areas other than the major option area; (2) One course (2-4 cr) in appropriate research methods, statistics, or directed study at the 500 level; (3) Depth requirement: the graduate program is structured around option areas (ecology/biological science, waste management, earth science/hydrology, natural resource management, physical science, and policy and law) providing depth, 12-15 cr reqd; (4) EnvS 501, environmental science seminar, 3 cr; (5) option area graduate seminar, 1 cr; and (6) EnvS 500 or 599, 6 or 3 cr, respectively. These requirements may be augmented to compensate for undergraduate deficiencies.

The thesis degree consists of at least 30 graduate credits, including at least 6 credits and a maximum of 10 credits of thesis and a minimum of 24 credits of course work. For the thesis option, at least 21 credits in the option and supporting area must be at the 500 level, including a minimum of 6 hours of research and thesis (EnvS 500). The nonthesis degree program requires at least 30 graduate credits, including a minimum of 3 credits of EnvS 599 (Nonthesis Research) and 27 credits of course work. For the nonthesis option, at least 21 credits in the option and supporting area must be at the 500 level, including 3 hours of nonthesis research (EnvS 599). For both thesis and nonthesis options, a student can take up to 9 credits at the 400 level in the option and supporting area (one class can be at the 300 level in a supporting area with committee approval). The thesis or nonthesis research part of the program for each student consists of a substantial project in which the student demonstrates ability to do rigorous independent work.

**Distance Education.** The M.S. degrees in waste management, and policy and law are available in Idaho Falls. The M.S. with a water science emphasis is available in Idaho Falls, Coeur d'Alene, Boise, and through Engineering Outreach.

**Professional Certificates:** Twelve-credit professional certificates in water science and environmental contamination assessment are also available through the Environmental Science Program. The certificates can be completed on the Moscow campus or through distance education. Procedural details are available in the program office.

**Concurrent J.D./M.S. Environmental Science Degrees.** The concurrent J.D./M.S. degree program offers students an opportunity to combine the study of scientific, social, philosophical, and legal aspects of environmental issues. This program equips students for jobs in which the technical knowledge offered through the Environmental Science Program and the professional expertise provided by the College of Law would be beneficial.

Students must apply separately to and be admitted by the College of Graduate Studies/Environmental Science Program, the College of Law, and the Concurrent J.D./M.S. Degree Program. Admission into the concurrent degree program is dependent on a demonstrated ability to excel in an intense, interdisciplinary educational environment.

Students must complete the requirements set out above for an M.S. degree in environmental science and the requirements for a J.D. (see the College of Law section), subject to the following conditions. The first year of study will be exclusively in the College of Law. Because the concurrent degree program requires an M.S. thesis, the fourth year of the program will be primarily in the Environmental Science Program. Up to 12 hours of M.S. graduate credit will be allowed toward the J.D. degree and up to 6 hours of law credit will be allowed toward the M.S. degree from preapproved lists of classes. This will permit a student to complete the concurrent degree program in as little as four years. If a student fails to complete the master's degree program, no more than 6 credits will be allowed toward the J.D. degree; if a student fails to complete the law program, the student will be required to satisfy all requirements of the Environmental Science Program before receiving the M.S. degree. See the College of Graduate Studies and the College of Law sections on Part 4 for additional information on the graduate/law concurrent degrees.

Questions regarding the concurrent degree program should be addressed to the Environmental Science Program coordinator (208/885-6113) or to the College of Law (208/885-6423).

# Margaret Ritchie School of Family and Consumer Sciences

**Nancy J. Wanamaker, Interim Director (105 Mary Hall Niccolls Family and Consumer Sciences Bldg. 83844-3183; phone 208/885-6545; e-mail famcon@uidaho.edu).** ***Faculty:*** **Marilyn C. Bischoff, Laurel J. Branen, Jeffrey D. Culbertson, Sandra Evenson, Janice W. Fletcher, Kathe A. Gabel, Madeline Dellwo Houghton, Virginia W. Junk, Laurel G. Lambert, Sandra M. McCurdy, Mary J. Pickard, Suzanne M. Planck, Martha A. Raidl, Cynthia J. Schmiege, Harriet L. Shaklee, David J. Trayte, Nancy J. Wanamaker.** ***Adjunct Faculty:*** **A. Larry Branen, Arlinda K. Nauman, Randy M. Page.**

Family and consumer sciences focuses on the relationships, resources, and services contributing to individual and family well being. The discipline analyzes the needs of individuals and families using social, psychological, physical, biological, economic, and aesthetic theories and concepts.

Three majors leading to the degree of Bachelor of Science in Family and Consumer Sciences (B.S.F.C.S.) are offered by the School of Family and Consumer Sciences and are designed to meet professional and individual goals of students. These are: (1) child, family, and consumer studies, (2) food and nutrition, and (3) clothing, textiles and design.

Students may choose one of three program options in the child, family, and consumer studies major. Child development/family relations focuses on the normal, healthy development of children and families. Consumer affairs emphasizes "the consumers' interests" when studying economics, business, and communication practices in our society. Family and consumer sciences education prepares students for teaching in the public schools, in community settings, or business audiences. Graduates of the major include day care managers, child life specialists, consumer affairs advocates, extension educators, and teachers.

The food and nutrition major offers the dietetics and nutrition options. The Coordinated Program in Dietetics includes a senior year experience in Spokane where students complete a supervised practicum in community and medical center settings. This program is accredited by the American Dietetic Association and allows students to take the exam to become registered dietitians. The nutrition option prepares students for careers with government agencies, commodity groups, health and fitness agencies and businesses, and some components of the food industry. In addition, the course work would provide excellent background for those wishing to pursue advanced degrees in medicine or nutrition. The first two years of courses are very similar in these two options. Students apply for acceptance into the Coordinated Program in Dietetics at the end of the sophomore year.

The clothing, textiles, and design major offers both apparel design and fashion merchandising emphases. Combining courses from art or business with the clothing, textile, and design courses offered in the school prepares students for careers in retail and wholesale sectors of the apparel and textile industries. Designers, product development specialists, retail buyers and managers, and merchandise managers are some of the career titles held by UI graduates.

The Margaret Ritchie School of Family and Consumer Sciences offers graduate course work and research opportunities concerning individuals and families across their life spans. An integrated approach prepares students for the complexities of our global society through the analysis and application of relevant theories, practices, and research. Issues important to individuals and families, such as human development, consumption, resource management, education, aesthetics, and public policy, are studied in the context of cultural and physical environments.

Graduate students apply communication, analytical, evaluation, and synthesis skills to the study of families and consumers through classroom, practica, and research experiences. The school's Child Development Laboratory provides a special resource for both teaching and research activities. Internships in community agencies and business, practica in teaching and supervision, and graduate teaching and research assistantships also provide valuable graduate student experiences. Graduate student research is closely aligned with faculty interests that currently include work and family, quality child care, feeding young children, at-risk youth, financial management through the life span, sports nutrition, family and consumer sciences education, international textile trade patterns, and cultural aspects of dress. The program prepares students to be teachers in the public schools and community colleges; child or human development specialists in public and private organizations such as nonprofit and social services agencies, hospitals, child care centers, and the extension system; and for the future pursuit of the Ph.D. degree in family and consumer sciences, social work, education, or related fields.

The Margaret Ritchie School of Family and Consumer Sciences has an outstanding scholarship program for entering first-year students, continuing undergraduate majors, and graduate students. Most scholarships are awarded on the basis of academic excellence regardless of financial need.

## Courses

See part 6 for courses in Family and Consumer Sciences (FCS).

# Undergraduate Curricular Requirements

## CHILD, FAMILY, AND CONSUMER STUDIES (B.S.F.C.S.)

This major has an interdisciplinary focus on the child, the family as an institution, and families as consumers.

The minimum credits required for graduation are 132, including at least 36 credits at the 300-level or above. Required course work includes the university requirements (see regulation J-3) and one of the following options:

### A. CHILD DEVELOPMENT/FAMILY RELATIONS OPTION

The CDFR option allows students to develop individualized programs to meet personal and career goals. Some suggested career emphasis areas are: (1) human services, (2) education (double major leading to Idaho elementary teaching certification is possible--consult an advisor in the College of Education), and (3) child life. Students are encouraged to complete an internship.

FCS 105 Individual and Family Development (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 234 Infancy and Early Childhood (3 cr)
FCS 235 Principles and Methods of Child Observation (3 cr)
FCS 240 Intimate Relationships (3 cr)
FCS 333 Developmental Curriculum for Young Children (3 cr)
FCS 334 Middle Childhood-Adolescence (3 cr)
FCS 340 Parent-Child Relationships in Family and Community (3 cr)
FCS 346 Personal and Family Finance and Management (4 cr)
FCS 436 Theories of Child and Family Development (3 cr)
FCS 440 Contemporary Family Relationships (3 cr)
FCS 451 Professional Development (3 cr)
FCS 497 Practicum (9 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
H&S 288 First Aid: Emergency Response (2 cr)
Stat 150 Intro to Statistics or Stat 251 Principles of Statistics (3 cr)
Computer applications elective (3 cr)

### B. CONSUMER AFFAIRS OPTION

The consumer affairs option prepares students to advocate for the consumer and to help consumers improve their well-being. Consumer affairs professionals present the consumer's viewpoint to their employing organization and convey information about the organization's products and services to the consumer. Career options include jobs in business firms, government agencies, and nonprofit organizations.

FCS 105 Individual and Family Development (3 cr)
FCS 346 Personal and Family Finance and Management (4 cr)
FCS 428 Housing America's Families (3 cr)
FCS 440 Contemporary Family Relationships (3 cr)
FCS 445 Issues in Work and Family Life (3 cr)
FCS 448 Consumer Economic Issues (3 cr)
FCS 451 Professional Development (3 cr)
FCS 498 Internship (3-8 cr)
AgEc 356 Agricultural Programs and Policies or Econ 316 Econ of Regulation (3 cr)
ASM 240 Computer Applications in Biological Systems (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 321 Marketing (3 cr)
Bus 324 Buyer Behavior (3 cr)
Bus 413 Organizational Behavior (3 cr)
BuEd 415 Microcomputer Applications (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Comm 121 Media Writing (3 cr)
Comm 252 Principles of Public Relations (3 cr)
Comm 265 Advertising and Society (3 cr)
Comm 431 Professional Presentation Techniques (3 cr)
Econ 201, 202 Principles of Economics (6 cr)
Stat 150 Intro to Statistics or Stat 251 Prin of Statistics (3 cr)
FCS consumer elective (3 cr)
Additional family and consumer sciences courses to total at least 45 cr

**C. FAMILY AND CONSUMER SCIENCES EDUCATION OPTION**

Family and Consumer Sciences Education prepares students for teaching in the public schools, in community settings, or business audiences.

Students seeking certification as secondary teachers must meet College of Education requirements for entry into teacher education. These requirements are prerequisite to enrollment in upper-division courses in the College of Education (see "Admission to the Teacher Education Program"). Completion of this option will qualify students for the Idaho standard secondary teaching certification with a vocational home economics endorsement. With minimal additional course work, students can qualify for other teaching endorsements.

Two of the following courses (6 cr):
- FCS 123 Textiles (3)
- FCS 223 Evaluation of Apparel and Textiles (3 cr)
- FCS 224 Apparel Design I (3 cr)
- FCS 419 Dress and Culture (3 cr)

FCS 105 Individual and Family Development (3 cr)
FCS 170 Food: Science and Practice (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 234 Infancy and Early Childhood (3 cr)
FCS 270 Intermediate Foods (3 cr)
FCS 346 Personal and Family Finance and Management (4 cr)
FCS 428 Housing America's Families (3 cr)
FCS 440 Contemporary Family Relationships (3 cr)
FCS 448 Consumer Economic Issues (3 cr)
FCS 450 Curriculum Development in Family and Consumer Sciences Ed (3 cr)
FCS 451 Professional Development (3 cr)
FCS 471 Student Teaching in Family and Consumer Sciences Ed (10 cr)
ACTE 444 Diverse Populations and Individual Differences (2 cr)
ACTE 445 Proseminar in Professional-Technical Education (2 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2 cr)
Art 100 Visual Art (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201 Principles of Economics (3 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 328 Introduction to Educational Technology (2 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
PTE 351 Principles and Philosophy of Professional-Technical Ed (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
Soc 101 Introduction to Sociology (3 cr)
Biology elective (4 cr)
Chemistry elective (4 cr)
Humanities elective (3 cr)
Math/statistics/computer science elective (3 cr)

## CLOTHING, TEXTILES AND DESIGN (B.S.F.C.S.)

This major considers clothing, textiles and design as basic human needs, consumer products, historical and cultural artifacts, and communication tools. Career emphasis areas include retail buying and selling, design, and international marketing.

Required course work includes the university requirements (see regulation J-3) and:

FCS 105 Individual and Family Development (3 cr)
FCS 119 Fashion from Concept to Consumer (3 cr)
FCS 123 Textiles (3 cr)
FCS 205 Concepts in Human Nutrition or FCS 405 Eating Disorders (2-3 cr)
FCS 223 Evaluation of Apparel and Textiles (3 cr)
FCS 224 Apparel Design I (3 cr)
FCS 329 History of Western Dress (3 cr)
FCS 419 Dress and Culture (3 cr)
FCS 448 Consumer Economic Issues (3 cr)
FCS 496 Internship: Fashion Business (3-9 cr)
Art 100 Visual Art (3 cr)
Bus 321 Marketing (3 cr)
Chem 101 Introduction to Chemistry I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201 or 202 Principles of Economics (3 cr)
Psyc 101 Intro to Psychology or Soc 101 Intro to Sociology (3 cr)
Anthropology elective (3 cr)

Computer applications elective (2-3 cr)
Advisor-approved clothing, textiles, and design electives (9 cr)
Humanities electives (3 cr)
Humanities or social science electives (3-4 cr)
Math/statistics elective (4 cr)
Additional FCS credits outside of the CTD curriculum (6 cr)
An area of emphasis selected with the guidance of an advisor (18 cr)
Electives to total 132 cr for the degree

## FOOD AND NUTRITION (B.S.F.C.S.)

Required course work includes the university requirements (see regulation J-3) and one of the following options.

### A. COORDINATED PROGRAM IN DIETETICS

Upon acceptance to the professional phase of the CPD during the second semester of the sophomore year, students must maintain a cumulative grade-point average of at least 2.80 to remain in and graduate from the program. Students must also obtain at least a B (80%) in all CPD courses required by the American Dietetic Association.

FCS 105 Individual and Family Development (3 cr)
FCS 170 Food: Science and Practice (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 270 Intermediate Foods (3 cr)
FCS 305 Nutrition Related to Fitness and Sport (3 cr)
FCS 361 Advanced Nutrition (4 cr)
FCS 362 Introduction to Clinical Dietetics (4 cr)
FCS 363 Diet Therapy (4 cr)
FCS 364 Clinical Dietetics I (4 cr)
FCS 384 Quantity Food Production and Equipment (5 cr)
FCS 387 Food Systems Management (3 cr)
FCS 405 Eating Disorders (2 cr)
FCS 472 Clinical Dietetics II (6 cr)
FCS 473 Community Nutrition (4 cr)
FCS 474 Food Research and Development (3 cr)
FCS 485 Computer Applications in Food Administration (2 cr)
FCS 486 Nutrition in the Life Cycle (4 cr)
FCS 487 Management Supervised Practice (2 cr)
FCS 488 Management Supervised Practice II (6 cr)
Acct 201 Introduction to Financial Accounting or Acct 202 Introduction to Managerial Accounting (3 cr)
Biol 120 Human Anatomy (4 cr)
Biol 121 Human Physiology (4 cr)
Bus 311 Introduction to Management (3 cr)
Chem 101 Intro to Chemistry I or Chem 111 Prin of Chemistry I (4 cr)
Chem 275, 276 Carbon Compounds and Lab (4 cr)
Econ 201 or 202 Principles of Economics (3 cr)
Engl 317 Technical Writing (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
MMBB 154, 155 Introductory Biology of Bacteria and Viruses and Lab (4 cr)
MMBB 300 Survey of Biochemistry (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
Soc 101 Introduction to Sociology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Humanities electives (6 cr)
Electives to total 132 cr for the degree

### B. NUTRITION OPTION

This option prepares students for careers with government agencies, commodity groups, health and fitness agencies and businesses, and some components of the food industry. In addition, the course work would provide excellent background for those wishing to pursue advanced degrees in medicine or nutrition.

FCS 105 Individual and Family Development (3 cr)
FCS 170 Food: Science and Practice (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 270 Intermediate Foods (3 cr)
FCS 305 Nutrition Related to Fitness and Sport (3 cr)
FCS 361 Advanced Nutrition (4 cr)
FCS 362 Introduction to Clinical Dietetics (4 cr)
FCS 405 Eating Disorders (2 cr)
Biol 120 Human Anatomy (4 cr)
Biol 121 Human Physiology (4 cr)

Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)
Chem 112** Principles of Chemistry II (5 cr)
Chem 275, 276* Carbon Compounds and Lab or Chem 277, 278** Organic Chem I and Lab (4 cr)
Engl 317 Technical Writing (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
MMBB 154, 155* Introductory Biology of Bacteria and Viruses and Lab or MMBB 250** General Microbiology (4-5 cr)
MMBB 300 Survey of Biochemistry (3 cr)
Phys 111-112** General Physics I-II (8 cr)
Stat 251 Principles of Statistics (3 cr)
Humanities electives (6 cr)
Social science electives (9 cr)
FCS electives (12 cr)
Electives to total 128 cr for the degree

* Required for the general nutrition option.
** Prerequisite courses for nutrition-related postgraduate education.

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the School of Family and Consumer Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** A letter of intent, which includes a statement of goals, objectives, and academic interests, and three letters of recommendation are required for admission. Information may be obtained at the school. (A) Thesis Option: Thirty credits of course work including a 13-credit emphasis area in family and consumer sciences and related areas, two graduate seminars, courses in theory and research methods and analysis, and at least 6 credits of thesis research. (B) Non-thesis Option: Thirty-four credits of course work including a 17-19 credit emphasis area in family and consumer sciences and related areas, two graduate seminars, courses in theory and research methods and analysis, and a master's project.

# Department of Fish and Wildlife Resources

**George W. LaBar, Dept. Head (105A CNR Bldg. 83844-1136; phone 208/885-6434; fish_wildlife@uidaho.edu).**

***Fishery Resources Faculty:*** **David H. Bennett, Jeffrey H. Braatne, Ernest L. Brannon, Kenneth D. Cain, James L. Congleton, C. Michael Falter, George W. LaBar, Christine M. Moffitt, Madison S. Powell, Dennis L. Scarnecchia.**

***Wildlife Resources Faculty:*** **Brian C. Dennis, Edward O. Garton, Dennis L. Murray, Janet L. Rachlow, John T. Ratti, Kerry P. Reese, J. Michael Scott, Lisette P. Waits, R. Gerald Wright.**

Fish and wildlife resources deals with the application of principles of biology and ecology to the understanding of how fish and wildlife populations interact with each other and with their environment, which includes humans. There are three areas of emphasis within the department: **aquaculture, fisheries, and wildlife**. Persons interested in aquaculture or fisheries can design their major within the B.S. in Fishery Resources and those interested in wildlife, within the B.S. in Wildlife Resources.

Fishery biologists and scientists conduct research or apply management principles to aquatic ecosystems. They may become involved with biological monitoring, environmental impact assessment, maintenance of endangered fish, hatchery operation, commercial fish farming, control and prevention of fish diseases, and management of stream or lake ecosystems.

Wildlife biologists, or managers, attempt to maintain adequate populations of game and nongame wildlife species. This involves studying wildlife and its habitat so that management programs can be biologically based. The job often involves coordinating wildlife management programs with other natural resource activities such as forest management, range management, and land use planning.

Both professions offer opportunities in law enforcement, communications, and public relations. A common saying, and one with a great deal of truth, is that fish or wildlife management is largely people management.

Bachelor of Science degrees are offered in fishery resources, wildlife resources, and natural resources ecology and conservation biology (NRECB). In the fishery resources degree, students may design a program that emphasizes fisheries ecology, aquatic ecology, aquaculture, or fisheries management. In the wildlife resources degree, the program emphasizes the principles of wildlife ecology, population dynamics, and management. In the college-wide NRECB degree, students may select a natural resource ecology or conservation biology option. Elective courses in all programs provide an opportunity to gain additional knowledge in a special area of interest or to broaden into other fields. To ensure that the student gains practical experience, one season of approved work experience or internship before graduation is required. For more information on the NRECB program, see the section on "Natural Resources."

Fish and wildlife graduates find employment with numerous federal and state agencies, educational institutions, and in the private sector. These include the U.S. Fish and Wildlife Service, the Bureau of Land Management, the U.S. Forest Service, the National Marine Fisheries Service, the Army Corps of Engineers, state fish and game or conservation departments, and private organizations such as power companies, commercial fish growers, and consultants. Recent surveys have shown that fish and wildlife baccalaureate graduates of UI obtain employment at a rate considerably above the national average.

The graduate program is offered to meet the needs of students who are interested in either specialized or generalized advanced study. Because specific requirements for each degree are determined by the student's supervisory committee, individual study plans allow for differences in preparation while providing all students with a comparable background by the time the graduate program is completed.

In addition to the admission requirements of the College of Graduate Studies, the prospective student should have maintained a cumulative grade-point average of at least 3.00 (on a 4.00 scale) during the undergraduate program. Acceptance of students who do not have this minimum grade-point average or other stated requirements is possible, subject to recommendation by the department head and approval of the College of Graduate Studies. The decision will be based on an analysis of the applicant's situation. The Graduate Record Examination is required for admission. At least one summer's experience with a natural resource agency is strongly recommended.

The graduate program in **fishery resources** is oriented toward the applied and basic aspects of fishery management, aquatic ecology, and fish health management. The fishery management area includes population analysis, management systems, and environmental stresses; the aquatic ecology area includes limnology, aquatic pollution ecology, and habitat management; and the fish health management area includes finfish culture (coldwater and warmwater), fish disease diagnostics and epidemiology, and fish physiology. The Idaho Cooperative Fish and Wildlife Research Unit and the Aquaculture Research Institute also provide important opportunities for graduate studies in fishery resources and aquaculture.

Students planning to begin graduate studies in fishery resources should have a broad background in the life sciences with specific emphasis on courses in the fishery sciences. They should also have a background in quantitative data processing and communication, both oral and written.

Admission to the graduate program in **wildlife resources** requires an undergraduate degree with a major in wildlife resources or a closely related field emphasizing the principles of wildlife ecology, population dynamics, and management. Students with differing

backgrounds are also admitted if they have substantial preparation in the biological and physical sciences. Candidates must fulfill entrance requirements of the Graduate College and of the Department of Fish and Wildlife Resources.

Graduate work in wildlife resources offers students the opportunity to do research in one of several areas including wildlife behavior, predator ecology, population dynamics, habitat relationships, and conservation biology, as well as big game, nongame, upland game, and waterfowl management. Students are encouraged to select topics that will benefit some portion of the wildlife program at the state or national level. Graduate projects in wildlife resources may be developed in cooperation with the Idaho Cooperative Fish and Wildlife Research Unit, an active participant in the department and the overall research program of the college.

In addition to the requirements listed above, graduate admission is based on the compatibility of the student's research interests with the areas of concentration in the department and the availability of research faculty.

The **research mission** of the department is attainment of new knowledge and the understanding of natural resources, their interrelationships and uses. The objectives of the research program are to attain knowledge of the environment and to develop management alternatives that will assist in the conservation of resources while meeting society's needs. The dissemination of this knowledge through publications, continuing education, and other channels of communication is an essential departmental function.

For additional information, please call the department at (208) 885-6434 or visit the web site at http://www.its.uidaho.edu/fishwild.

## Courses

See part 6 for courses in Fishery Resources (Fish) and Wildlife Resources (WLF).

## Undergraduate Curricular Requirements

### FISHERY RESOURCES (B.S.Fish.Res.)

Students pursuing a B.S. degree in fishery resources (management or aquaculture emphasis) must have received a grade of C or better in each of the following four indicator courses to register for fish- and wildlife-prefixed upper-division courses and to graduate with a B.S.Fish.Res.: Biol 112 and 213, Stat 251, and For/Rnge 221.

To graduate, students must achieve a grade of C or better in each fish- and wildlife-prefixed upper-division course listed in the requirements for the B.S. degree in fishery resources.

Required course work includes the university requirements (see regulation J-3) and:

**First and Second Years**

Fish 102 The Fishery Resources Profession (1 cr)
Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of biological Structure and Function (4 cr)
Chem 101 Introduction to Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
For/Rnge 221 Natural Resources Ecology (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
Geol 101 Physical Geology or Soil 205, 206 General Soils and Lab (4 cr)
Math 160 Survey of Calculus (4 cr)
Phys 100 Fundamentals of Physics (4 cr)
Stat 251 Principles of Statistics (3 cr)

**Summer Session**

Fish/WLF/For/ForP/Rnge/RRT 302 Wildland Field Ecology (2 cr)

**Third and Fourth Years**

Fish 314 Fish Ecology (3 cr)
Fish 316 Principles of Population Dynamics (2 cr)
Fish 411 Ichthyology (4 cr)
Fish 415 Limnology (4 cr)
Fish 418 Fisheries Management (4 cr)
Fish 422 Concepts in Aquaculture or Fish 424 Fish Health Management (3 cr)
Fish/WLF/For/ForP/Rnge/RRT 470 Interdisciplinary Natural Resource Planning (3 cr)
Fish 495 Seminar (1 cr)
AVS 371 Anatomy and Physiology or Biol 423 Comparative Vertebrate Physiology (4 cr)

Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
MMBB 250 General Microbiology (5 cr)
WLF 448 Fish and Wildlife Population Ecology (4 cr)
Restricted electives selected from the following courses (15 cr)
- AgEc 391 Agribusiness Mgt (suggested for students interested in aquaculture) (3 cr)
- AVS 305 Animal Nutrition (4 cr)
- Biol 484 Invertebrate Zoology (4 cr)
- Bus 321 Marketing (suggested for students interested in aquaculture) (3 cr)
- Ent 472 Aquatic Entomology (3 cr)
- Fish 422 Aquaculture (if not taken above) (3 cr)
- Fish 424 Fish Health Management (if not taken above) (3 cr)
- Fish/Rnge 430 Riparian Ecology and Management (2 cr)
- For 462 Watershed Management (2 cr)
- Gene 314 General Genetics (3 cr) or Biol 210 Genetics (4 cr)
- MMBB 300 Survey of Biochemistry (3 cr)
- WLF 314 Wildlife Ecology I (3 cr)
- WLF 315 Wildlife Ecology I Laboratory (1 cr)
- WLF 316 Wildlife Ecology II (4 cr)
- WLF 440 Conservation Biology (3 cr)

Electives to total 128 credits for the degree

## NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Natural Resources" in Part 5.

## WILDLIFE RESOURCES (B.S.Wildl.Res.)

Students pursuing a B.S. in wildlife resources must have received a grade of C or better in each of the following four indicator courses to register in fish- and wildlife-prefixed upper-division courses and to graduate with a B.S. in wildlife resources: Biol 212 and 213, Stat 251, and For/Rnge 221.

To graduate, a student must receive a grade of C or better in each fish- and wildlife-prefixed upper-division course listed in the requirements for the B.S. in wildlife resources.

Required course work includes the university requirements (see regulation J-3) and:

**First and Second Years**

WLF 102 The Wildlife Profession (1 cr)
WLF/For/Rnge 221 Natural Resources Ecology (3 cr)
Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of biological Structure and Function (4 cr)
Biol 341 Systematic Botany or For 320 Dendrology or Rnge 353 Rangeland Plant Identification and Ecology (3 cr)
Chem 101 Introduction to Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
Geol 101 Physical Geol or Soil 205, 206 General Soils and Lab (4 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geometry and Calculus I (4 cr)
Stat 251 Principles of Statistics (3 cr)

**Summer Session**

Fish/WLF/For/ForP/Rnge/RRT 302 Wildland Field Ecology (2 cr)

**Third and Fourth Years**

WLF 314, 315 Wildlife Ecology I and Lab (4 cr)
WLF 316 Wildlife Ecology II (4 cr)
WLF 440 Conservation Biology (3 cr)
WLF 448 Fish and Wildlife Population Ecology (4 cr)
WLF/For 470 Interdisciplinary Natural Resource Planning (3 cr)
WLF 492 Wildlife Management (4 cr)
WLF 495 Wildlife Seminar (1 cr)
ASM 240 Computer Applications in Biological Systems, For 394 Quantitative Resource Analysis, Geog 385 GIS Primer, or LArc 385 GIS Primer (3 cr)
AVS 371 Anatomy and Physiology (4 cr)

Engl 208 Personal and Exploratory Writing, Engl 317 Technical Writing, or Comm 431 Professional Presentation Techniques (3 cr)
For 383 Economics for Natural Resource Managers, AgEc 451 Land and Natural Resource Economics, or Econ 385 Environmental Economics (3 cr)
Gene 314 General Genetics (3 cr) or Biol 210 Genetics (4 cr)
Phys 100 Fundamentals of Physics (4 cr)
Restricted electives, choose two courses from the following:
- Biol 483 Mammalogy
- Biol 484 Invertebrate Zoology
- Fish 411/Biol 481 Ichthyology
- WLF 482 Ornithology

Electives to total 128 credits for the degree

## Academic Minor Requirements

### FISHERY RESOURCES MINOR

Fish 314 Fish Ecology (3 cr)
Fish 495 Seminar (1 cr)
For/Rnge 221 Natural Resources Ecology (3 cr) or Biol 314 Ecology and Population Biology (4 cr)
Four of the following courses (12-15 cr):
- Fish 411 Ichthyology (4 cr)
- Fish 415 Limnology (4 cr)
- Fish 418 Fisheries Management (4 cr)
- Fish 422 Concepts in Aquaculture (3 cr)
- Fish 424 Fish Health Management (3 cr)
- Fish 430 Riparian Ecology and Management (2 cr)

### WILDLIFE RESOURCES MINOR

For/Rnge 221 Natural Resources Ecology (3 cr) or Biol 314 Ecology and Population Biology (4 cr)
WLF 314, 315 Wildlife Ecology I and Lab (4 cr)
WLF 316 Wildlife Ecology II (4 cr)
WLF 495 Wildlife Seminar (1 cr)
Three of the following courses (8-11 cr):
- WLF 440 Conservation Biology (3 cr)
- WLF 441 Behavioral Ecology (3 cr)
- WLF 445 Nongame Management (2 cr)
- WLF 448 Fish and Wildlife Population Ecology (4 cr)
- WLF 492 Wildlife Management (4 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Fish and Wildlife Resources. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science--Majors in Fishery Resources or Wildlife Resources.** The M.S. degree with major study in either fishery resources or wildlife resources is awarded when a student has met the requirements listed below. A formal graduate program of at least 30 semester hours is chosen in consultation with the major professor and the student's supervisory committee. At least 18 credits must be courses numbered 500 and above. For the thesis option, no more than 10 of the 500-level credits of Research and Thesis may be applied toward the degree. (A) Thesis option: General M.S. requirements apply except that the thesis requirement may be fulfilled by one or more journal publications at the discretion of the candidate's supervisory committee. (B) Nonthesis option: General M.S. requirements apply. A professional paper is required.

The Ph.D. degree is available with a major in natural resources. General Ph.D. requirements apply; see the section on "Natural Resources" in part 5 for details.

# Department of Food Science and Toxicology

**Denise M. Smith, Dept. Head (22 Glen C. Holm Bldg. 83844-2201; phone 208/885-7081 or toll-free 888/900-3783; e-mail fstasl@uidaho.edu).** ***Faculty:*** **A. Larry Branen, Jeffry D. Culbertson, Jerry H. Exon, Kerry C. Huber, Gregory Möller, Denise M. Smith, Patricia A. Talcott, Pawan P. Singh, Gülhan Yüksel.** ***Adjunct Faculty:*** **Laurel J. Branen, Kathe A. Gabel.** ***Affiliate Faculty:*** **John Baranowski, Miles Willard.**

Food science is a multidisciplinary science that applies biology, chemistry, nutrition, engineering, and other sciences to improve the safety and quality of food products, develop new food products, and design new, safer, and more energy efficient food processes. The multi-billion dollar food industry is the largest manufacturing industry in the United States. Food scientists are employed around the world by large and small food processing companies, food ingredient suppliers, food quality assurance and testing labs, federal and state governmental agencies, and academia. There are more job openings for food scientists in the food industry than graduates to fill them. This trend is expected to continue well into the 21st century. Consequently, starting salaries for food scientists are highly competitive.

Career opportunities are excellent. Entry level jobs in the food industry include food product development, food process development, food quality assurance, food safety compliance, and technical sales. Food scientists work to enhance the quality of foods through biotechnology, as well as improve the microbial and chemical safety of foods. Food scientists develop new food flavors, extend the shelf life of foods, and devise new processing technologies. All of the food products in a grocery store and many foods offered on restaurant menus have been developed and tested by food scientists.

The Department of Food Science and Toxicology offers the B.S.F.S. and M.S. degrees in food science. The undergraduate program is approved by the Institute of Food Technologists, the primary professional organization for food scientists. Students complete university requirements, supporting science and mathematics classes during their first two years of study. Most of these courses can be completed at community colleges, prior to transferring to UI. Courses taken in the last two years of the program are discipline specific and include food microbiology, food chemistry, food processing, and food engineering. Faculty from both UI and Washington State University teach courses in the food science program. Some classes are taught on the UI campus and some on the WSU campus, allowing students access to facilities and faculty expertise from both institutions. Students are encouraged to work on research problems with faculty and participate in internships in the food industry.

Areas of research emphasis include food chemistry, food biotechnology, food safety, food processing/engineering, and food and environmental toxicology. Departmental research programs include studies of the genetic/metabolic engineering of microorganisms, such as lactic acid bacteria, for bio-preservation of food products and conversion of biomass (i.e. potato processing waste to valuable fuels and chemicals); development of new processes and technologies to improve the microbial safety of foods; investigations into mechanism(s) of action of food borne anti-toxicants that may improve human health or reduce chronic human disease; investigation of soft wheat and potato quality, functionality, and end-use potential; assessment of starch behavior and function in food processing operations; investigation of the physicochemical and functional properties of dairy and meat protein ingredients; utilization of novel protein and starch ingredients in food systems; Fickian and non-Fickian transport in porous biopolymeric systems; stress-crack prediction in food materials and controlled release of drugs and flavors; and examination of natural and engineered processes in the characterization, fate, transport, and control of environmental and food system contaminants.

Faculty in the department supervise graduate students working toward M.S. degrees in either food science or the multidisciplinary program in environmental science (refer to the Program in Environmental Science for more information on requirements for the M.S. in environmental science). In addition to admission requirements determined by the College of Graduate Studies, admission to the graduate program in food science requires (1) a minimum GPA of 2.80; (2) GRE scores (no specified minimum score); (3) a minimum TOEFL score of 550; (4) a letter outlining research interests and career goals of the applicant; and (5) three letters of recommendation, with at least two from individuals in academia. Prospective students are encouraged to write or call the department or individual faculty members to learn more about specific research opportunities.

## Courses

See part 6 for courses in Food Science and Toxicology (FST).

## Undergraduate Curricular Requirements

### FOOD SCIENCE (B.S.F.S.)

Required course work includes the university requirements (see regulation J-3) and:

ASM 240 Computer Applications in Biological Systems (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)

Engl 317 Technical Writing (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FST 170 Food: Science and Practice (3 cr)
FST 220 Food Safety and Quality (3 cr)
FST 303 Food Processing (3 cr)
FST 400 Seminar (1 cr)
FST 416, 417 Food Microbiology and Lab (4 cr)
FST 433, 434 Agricultural Processing Systems and Lab (4 cr)
FST 460, 461 Food Chemistry and Lab (4 cr)
FST 462 Food Analysis (4 cr)
FST 470 Advanced Food Technology (3 cr)
FST 489 Food Product Development (3 cr)
MMBB 250 General Microbiology (5 cr)
Phys 111 General Physics I (4 cr)
Stat 251 Principles of Statistics (3 cr)
Two courses chosen from Math 160, 161, 170, and 175 (7-8 cr)

And one of the following emphasis areas:

**I. Processing Emphasis**

- Chem 275 Carbon Compounds (3 cr)
- Chem 276 Carbon Compounds Lab (1 cr)
- MMBB 300 Survey of Biochemistry (3 cr)
- Select 12 credits from the following:
  - AVS 463 Advances in Meat Science (3 cr)
  - FST 398 Internship (3 cr)
  - FST 304 Cereal Products (2 cr)
  - FST 363 Animal Products for Human Consumption (3 cr)
  - FST 429 Dairy Products (4 cr)
  - FST 464 Food Toxicology (3 cr)
  - PlSc WS 360 World Agricultural Systems (3 cr)
  - PlSc 490 Potato Science (3 cr)

**II. Business Emphasis**

- Chem 275 Carbon Compounds (3 cr)
- Chem 276 Carbon Compounds Lab (1 cr)
- MMBB 300 Survey of Biochemistry (3 cr)
- Select 12 credits from the following:
  - Acct 201 Intro to Financial Accounting (3 cr)
  - Acct 202 Intro to Managerial Accounting (3 cr)
  - Bus 301 Financial Management (3 cr)
  - Bus 311 Introduction to Management (3 cr)
  - Bus 321 Marketing (3 cr)
  - Bus 350 Management Information Systems (3 cr)
  - Bus 370 Production/Operations Management (3 cr)

**III. Science Emphasis**

- Chem 277 Organic Chemistry I (3 cr)
- Chem 278 Organic Chemistry I: Lab (1 cr)
- MMBB 380 Introductory Biochemistry (4 cr)
- Select 11 credits from the following:
  - Chem 253 Quantitative Analysis (5 cr)
  - Chem 302, 303 Principles of Physical Chemistry & Lab (4 cr)
  - FST 464 Food Toxicology (3cr)
  - FST 499 Directed Study (3-4 cr)
  - Gene 314 General Genetics (3 cr)
  - MMBB 382 Introductory Biochemistry Laboratory (1 cr)
  - MMBB 412 Pathogenic Microbiology (3 cr)
  - MMBB 420 Epidemiology (3 cr)
  - MMBB 425 Microbial Ecology (3 cr)
  - MMBB 440 Advanced Laboratory Techniques (4 cr)
  - MMBB 460 Microbial Physiology (3 cr)

**IV. Nutrition Emphasis**

- Chem 275 Carbon Compounds (3 cr)
- Chem 276 Carbon Compounds Lab (1 cr)
- MMBB 380 Introductory Biochemistry (4 cr)
- Select 11 credits from the following:
  - FCS 270 Intermediate Foods (3 cr)
  - FCS 384 Quantity Food Production and Equipment (5 cr)
  - FCS 387 Food Systems Management (3 cr)
  - FCS 405 Eating Disorders (2 cr)
  - FCS 305 Nutrition Related to Fitness and Sport (3 cr)

Electives to total 128 credits for the degree

# Academic Minor Requirements

## FOOD SCIENCE MINOR

A minor in food science will provide undergraduates with an introduction to the discipline of food science and technology. The minor is designed to supplement technical or business skills obtained in other majors. The minor will allow a student to broaden his or her educational background and enhance employment options in the food industry.

FST 170 Food: Science and Practice
FST 303 Food Processing (3 cr)
FST 400 Seminar (1 cr)
FST 416, 417 Food Microbiology and Lab (4 cr)
FST 460 Food Chemistry (3 cr)
Additional courses in food science (FST) (4 cr)

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Food Science and Toxicology. See the College of Graduate Studies section of part 4 for general requirements applicable to degree programs.

**Master of Science.** A Master of Science degree is offered in food science. The degree will prepare students for a variety of positions in the food and related industries, as well as for further academic studies. Each student will design a study plan in consultation with an advisor and thesis committee. The degree program emphasizes research and a thesis is required for graduation.

# Department of Foreign Languages and Literatures

**Richard M. Keenan, Dept. Chair (302 Admin. Bldg. 83844-3174; phone 208/885-6179; fax 208/885-5221; email forlang@uidaho.edu).** ***Faculty:*** **Judith A. Baker (Spanish), Franklin J. Inojosa (Spanish), Irina A. Kappler-Crookston (Spanish), Richard M. Keenan (Spanish), Cecelia E. Luschnig (Classics), Michael W. Moody (Spanish), Sarah M. Nelson (French), Louis A. Perraud (Classics), James R. Reece (German), Margaret Van Epp Salazar (Spanish), Gerd Steckel (German), Dennis D. West (Spanish), Joan M. West (French).**

The study of a foreign language and literature is a way of expanding one's horizons while developing specific linguistic skills that will enhance career, academic, and travel opportunities. One of the many benefits derived from foreign-language study is the ability to transcend linguistic and cultural parochialism. To understand the uniqueness of one's own language and civilization, knowledge of another culture is essential. Language study is the key that unlocks the mysteries surrounding a foreign people. Through language, one is able to explore their literature, art, history, and philosophy--in short, their way of life. In preparing to meet the challenges of a rapidly changing and interdependent world, foreign language expertise plays an increasingly important role. In many areas (business, education, communications, social work, technical and engineering positions, science, law, medicine, etc.), knowledge of a second language is not only desirable but necessary.

The Department of Foreign Languages and Literatures offers major programs of study in three modern languages (Spanish, French, and German) as well as in classical studies and Latin. The department also offers elementary and intermediate level course work in Japanese. In addition, a cooperative course agreement with Washington State University in nearby Pullman makes it possible for students to complete basic course work in Chinese and Russian.

The department's business and computer science options offer students the opportunity to combine a foreign language major with pre-professional course work in these areas. Similarly, the international studies major allows students to combine advanced foreign language study with a specific issue and area study focus.

Language instruction at UI is proficiency-oriented in approach and encourages active student involvement from the outset. Language classes are small enough to allow for instructor-student interaction and to ensure that each student receives individual attention. Classroom instruction is supported by a fully equipped language learning laboratory with facilities for audiocassette, synchronized slide/sound, videocassette instruction, international programming, and computer assisted learning software.

The department actively encourages its students to pursue opportunities to work and/or study in foreign countries as part of their study program. Foreign language faculty advisors and the staff of the UI International Programs Office will gladly assist students in planning a semester's or year's study abroad.

If a student has already studied a foreign language in high school, he or she may be eligible to receive vertically-related course credits simply by enrolling in a more advanced course at UI.

The department offers graduate work in French, German, and Spanish leading to the M.A.T. in these fields. The purpose of these graduate programs in languages, cultures, and literatures is to offer advanced scholarly preparation for careers in teaching and other fields for which a high level of competence in these disciplines is required.

Applicants holding or about to receive a B.A. in the language of proposed specialization, or equivalent linguistic proficiency and a B.A. in another field, or the equivalent, may be recommended for admission to the program with the majority concurrence of the language section of specialization.

The candidate will demonstrate proficiency in the second foreign language equivalent to that acquired in passing a fourth-semester level course with a grade of C or better. This requirement is to be completed as early as possible in the student's program if it is not already fulfilled at the time of admission to the program.

For further information, please consult the department chair (208/885-6179).

## Courses

See part 6 for courses in English (FLEN), Chinese (Chin), French (Fren), German (Germ), Ancient Greek (Grek), Japanese (Japn), Latin (Latn), Nez Perce (NezP), Russian (Russ), Scandinavian (Scan), Spanish (Span), and General Courses (FL).

## Undergraduate Curricular Requirements

A maximum of 15 transfer credits and/or credits earned through study abroad may be applied toward the upper-division requirements for the B.A. degree in French, German, Latin, and classical studies. A maximum of 18 such credits may be applied toward the upper-division requirements for the B.A. degree in Spanish.

Students who receive a C or D in their first upper-division language class are required to pass an oral and written proficiency exam to meet minimum departmental proficiency standards before being allowed to register in other upper-division language classes.

A student must receive a C or better in an upper-division course in the appropriate target language to count towards the major.

Before going on a study abroad program, students must have the approval of their major advisor to ensure that their proposed program meets with departmental approval. Upon returning to UI, the Department of Foreign Languages and Literatures will evaluate the students' oral and written proficiency and determine which classes studied abroad may count towards the major.

## CLASSICAL STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

FLEN 211 Classical Mythology (Gods) (2 cr)
FLEN 212 Classical Mythology (Heroes) (2 cr)
FLEN 243 English Word Origins (2 cr)
FLEN 363-364 Literature of Ancient Greece and Rome (6 cr)
FLEN 441 Ancient Greek Civilization (3 cr)
FLEN 442 Civilization of Ancient Rome (3 cr)
Grek 341-342 Elementary Greek (or equivalent) (8 cr)
Latn 101-102 Elem Latin I-II (or equiv) (8 cr)
Additional Latin and/or Greek courses numbered above Latn 202 and Grek 342 (may incl up to 3 cr of adv lab courses in each language--Latn 369; Grek 349 other than basic skills) (18 cr)

Related fields or minor as approved by major advisor

## FRENCH (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Fren 101-102 Elementary French I-II or equivalent (8 cr)
Fren 201-202 Intermediate French I-II or equivalent (8 cr)
300-level French courses (20 cr)
400-level French courses (minimum) (3 cr)
FLEN 313 Modern French Literature in Translation or FLEN 315 French Cinema (minimum) (3 cr)
Additional electives in upper-division French or related fields approved by chair or approved academic minor in a related field (15 cr)
A second foreign language (elem and interm or equivalent), waived for students with a double major (FL&L plus another major) (16 cr)

## GERMAN (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Germ 101-102 Elementary German I-II or equivalent (8 cr)
Germ 201-202 Intermediate German I-II or equivalent (8 cr)
Upper-division courses in German language, lit, and culture incl minimum of 12 cr from the following (at least one course from each grouping) and a minimum of 3 cr in 400-level German language and lit (21 cr)
Germ 321 German Conversation and Germ 322 German Grammar and Composition
Germ 325-326 German Culture and Institutions
Germ 327-328 Survey of German Literature
A second foreign language (elem and interm or equivalent), waived for students with a double major (FL&L plus another major) (16 cr)
Courses in related fields approved by chair or approved academic minor in a related area (20 cr)

## LATIN (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Latn 101-102 Elementary Latin I-II (or equivalent) (8 cr)
FLEN 243 English Word Origins (2 cr)
FLEN 364 Literature of Rome (3 cr)
FLEN 442 Civilization of Ancient Rome (3 cr)
Upper-division courses in Latin (20 cr)
A second foreign language (elem and interm, or equivalent), waived for students with a double major (FL&L plus another major) (16 cr)
Related fields or academic minor (as approved by chair) (20 cr)

## SPANISH (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Span 101-102 Elementary Spanish I-II (or equivalent) (8 cr)
Span 201-202 Intermediate Spanish I-II (or equivalent) (8 cr)
Span 302 Advanced Composition (3 cr)
Span 305 Culture and Institutions of Spain (3 cr)
Span 306 Culture and Institutions of Latin America (3 cr)
Upper-division courses in Spanish language (9 credits must be 400 level) (15 cr)
A second foreign language (elem and interm, or equivalent), waived for students with a double major (FL&L plus another major) (16 cr)
Related fields (as approved by chair) (16 cr)

A maximum of 3 credits in FLEN 391, 393, or 394 may be counted toward a major in Spanish.

## FOREIGN LANGUAGES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

One foreign language, elementary and intermediate (16 cr)
Third-year language courses (Fren 301-302, Germ 321-322, Latn 365-366, Span 302-308) (6 cr)

And one of the following options:

**A. BUSINESS OPTION**

Designed to provide the student majoring in foreign languages with a liberal arts background and a component of business courses that will form a good beginning for entering a program leading to the degree of Master of Business Administration.

Approved upper-division foreign language courses (including one FL business course or approved alternative) (15 cr)
Acct 201-202 Intro to Financial Accounting and Intro to Managerial Accounting (6 cr)
BLaw 265 Legal Environment of Business (3 cr)
Either the College of Business and Economics Integrated Core (Bus 340-345*) or the following (15 or 18 cr):
- Bus 301 Financial Management (3 cr)
- Bus 311 Introduction to Management (3 cr)
- Bus 321 Marketing (3 cr)
- Bus 350 Management Information Systems (3 cr)
- Bus 380 International Business or Bus 482 International Marketing or Econ 446 International Economics or Econ 447 Economics of Developing Countries (3 cr)

Econ 272 Foundations of Econ Analysis or Econ 201, 202 Prin of Economics (4-6 cr)
FLEN 307 The European Union (3 cr)
Stat 251 Principles of Statistics or Stat 271 Statistical Inference and Decision Analysis* (3-4 cr)

* Students completing Bus 340-345 must take Stat 271 and, therefore, either Math 160 or 170.

**B. COMPUTER SCIENCE OPTION**

Designed to provide a student majoring in foreign languages with a liberal arts background and a component of computer science courses to prepare for admission to either the M.A.T. program in foreign languages or the M.S. program in computer science. This type of curriculum, involving competence in a foreign language as well as mathematical maturity, skill in the use of at least one programming language, and a basic knowledge of computer hardware, should also prove to be a fine background for developing interesting careers and/or graduate study in various fields, e.g., library science, international business, communications media, instructional media, and education.

Approved upper-division foreign language courses in French, German, or Spanish (15 cr) or FLEN 243, English Word Origins, and upper-division Latin and/or Greek courses (14 cr) (14-15 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
EE 243 Digital Logic (3 cr)
Math 170, 175 Analytic Geometry and Calculus (8 cr)
Math 176 Discrete Mathematics (3 cr)
Math 330 Linear Algebra (3 cr)
Stat 251 Principles of Statistics (3 cr)
Electives to total 128 cr for the degree (including at least 3 cr at the upper-division level)

# Academic Minor Requirements

A maximum of 6 credits earned through study abroad may be applied toward the upper-division course requirements for a minor in French, German, Spanish, Latin, and Greek.

A student must receive a C or better for an upper-division course in the appropriate target language to count towards the minor.

## CLASSICAL STUDIES MINOR

FLEN 211 Classical Mythology (Gods) (2 cr)
FLEN 212 Classical Mythology (Heroes) (2 cr)
FLEN 243 English Word Origins (2 cr)

And one of the following emphasis areas:

**Language Emphasis**

Grek 341-342 Elementary Greek (8 cr)
Latn 101-102 Elementary Latin I-II (8 cr)
Courses chosen from the following (3 cr):
- Upper-division Latin or Greek
- FLEN 363 Literature of Ancient Greece
- FLEN 364 Literature of Rome

**Ancient World Emphasis**

FLEN 363 Literature of Ancient Greece (3 cr)
FLEN 364 Literature of Rome (3 cr)
FLEN 441 Ancient Greek Civilization (3 cr)
FLEN 442 Civilization of Ancient Rome (3 cr)
Grek 341 Elementary Greek or Latn 101 Elementary Latin I (4 cr)
Phil 309 Hist of Ancient Philosophy or Arch 385 Hist of Architecture I: Pre-Modern (3 cr)

## FRENCH MINOR

Fren 101-102 Elementary French I-II (8 cr)
Fren 201-202 Intermediate French I-II (8 cr)
Fren 301 Adv French Grammar or Fren 302 Adv French Writing Skills (3 cr)
Upper-div courses in French (not incl lab-based and lit in translation courses) (6 cr)

## GERMAN MINOR

Germ 101-102 Elementary German I-II (8 cr)
Germ 201-202 Intermediate German I-II (8 cr)
Germ 321 German Conversation or Germ 322 German Grammar and Composition (3 cr)
Upper-div courses in German (not incl lab-based and lit in translation courses) (6 cr)

## GREEK MINOR

Grek 341-342 Elementary Greek (8 cr)
Grek 349 Advanced Greek lab (other than basic skills) (1-3 cr)
FLEN 211 and/or 212 Classical Mythology (2-4 cr)
FLEN 363 Literature of Ancient Greece (3 cr)
Advanced Greek readings (400-level) (6-8 cr)
Courses to total 25 credits for the minor chosen from the following:
- Additional upper-division Greek courses
- FLEN 243 English Word Origins
- FLEN 364 Literature of Rome
- FLEN 441 Ancient Greek Civilization
- Phil 309 History of Ancient Philosophy

## LATIN MINOR

Latn 101-102 Elementary Latin (8 cr)
Latn 369 Advanced Latin Language Lab (1-3 cr)
FLEN 243 English Word Origins (2 cr)
FLEN 364 Literature of Ancient Rome (3 cr)
Advanced Latin readings (300- or 400-level) (6 cr)
Courses to total 25 credits for the minor chosen from the following:

Additional Latin reading courses at 300- or 400-level (especially recommended for prospective teachers of Latin)
FLEN 211 Classical Mythology (Gods)
FLEN 212 Classical Mythology (Heroes)
FLEN 363 Literature of Ancient Greece
FLEN 442 Civilization of Ancient Rome

### SPANISH MINOR

Span 101-102 Elementary Spanish I-II (8 cr)
Span 201-202 Intermediate Spanish I-II (8 cr)
Span 302 Advanced Composition (3 cr)
Upper-div courses in Spanish (not incl lab-based and lit in translation courses) (6 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Foreign Languages and Literatures. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Arts in Teaching--Majors in French, German, or Spanish.** General M.A.T. requirements apply.

# Department of Forest Products

**Thomas M. Gorman, Dept. Head (102 CNR Bldg. 83844-1132; phone 208/885-9663; fprod@uidaho.edu).** ***Faculty:*** **Alton G. Campbell, Richard L. Folk, Thomas M. Gorman, Han-Sup Han, Leonard R. Johnson, Harry W. Lee, Timothy E. Link, Steven R. Shook, Francis G. Wagner.** ***Adjunct Faculty:*** **Louis L. Edwards, John S. Morris, Jay O'Laughlin.** ***Affiliate Faculty:*** **Donald A. Bender, Keith A. Blatner, Ben S. Bryant, Manuel R. Jelvez.**

Wood is a constant part of the lives of the people in this country and throughout the world. Nearly 80 percent of the material going into the construction of a home in the U.S. is wood based. It is also in the paper we use as newspapers, money, books, and packaging. In the U.S., every man, woman, and child consumes over 2,000 pounds of wood per year in the form of various products. The forest products industries rely on a renewable resource (trees) to produce over 5,000 different products for shelter, communications, packaging, and chemicals. Wood not only forms the raw material for the product, it also supplies a large portion of the energy needed by these industries. Many wood-using industries generate more than 50 percent of their energy requirements from wood residues. The industry utilizes almost all the wood fiber that is delivered to the mills and the innovation and modernization now taking place will assure a higher degree of efficiency and a greater level of utilization of the wood fiber.

The programs of the Forest Products Department are designed to prepare students for rewarding careers in an array of forest-products industries. Outstanding careers range from work with light-frame construction, forest engineering, log transport systems, pulp and paper manufacture, wood building products manufacture, and the business and marketing aspects of forest industries. In addition to jobs in industry, our graduates also obtain positions in a variety of governmental agencies and multinational corporations. A recent survey of graduates from the Forest Products Department showed that 95 percent of the respondents were employed in permanent, forest-products jobs or were in graduate school.

The Department of Forest Products cooperates with the wood technology program at Washington State University, the pulp and paper program at the University of Minnesota, the Department of Architecture at the University of Idaho, and the region's forest products industries in carrying out its program responsibilities. The forest products industry actively supports our programs through scholarships for undergraduate students.

The department offers four options within the B.S.For.Prod. degree. These include timber harvesting, wood construction and design, forest products business management, and pulp and paper technology.

The pulp and paper option is a cooperative program with the University of Minnesota. The student in this option spends the first three years at UI. The senior year is spent at the University of Minnesota, but the degree is awarded by the University of Idaho. This program permits access to the professional courses at both universities.

Facilities available to the department include a University Experimental Forest for use in the field work of the timber harvesting option and an experimental forest student logging crew that provides students with hands-on experience with timber harvesting and forest management. Forest products laboratory equipment (testing machine, wood flaker, blender, dry kiln, conditioning chambers, and microcomputer lab) provides students with hands-on experience with the manufacture and testing of a variety of forest products.

The department offers bachelor's, master's, and doctoral programs. The undergraduate programs are structured, but still allow the student to follow specific interests through course selection from restricted and unrestricted electives. A graduate student's program can be tailor-made to the student's career goals and aspirations. A variety of industrial organizations and public agencies provide funds and facilities to carry out research and this allows the department to offer assistantships and fellowships.

While graduate work is often undertaken by students who desire to enter careers in teaching and research, the program is also recommended for students who plan to enter production management and marketing careers. Work at the master's and doctoral levels is designed to enhance the student's professional background and is often pursued by those with backgrounds in forestry, business management, engineering, and other fields. For some students who plan to strengthen their background and enter the industrial and production fields, a nonthesis option at the master's level is available.

Graduate work can be undertaken in each of the department's principal areas: wood construction and design, wood technology and engineering, forest products business management and marketing, and timber harvesting.

Graduate students' research is closely integrated with that of the department's faculty. Emphasis areas currently include physical and mechanical properties of wood, wood chemistry, wood drying and preservation, technology of adhesives and particleboard, modeling and analysis of timber harvesting systems and equipment, recovery and use of wood for energy, forest road layout and construction, management and marketing in the forest products industry, value added manufacturing opportunities, and wood construction and design.

Breadth and diversity of opportunities for graduate students is enhanced by grants, contracts, and the department's cooperative relationships with government agencies, large forest industries, and nearby Washington State University.

Preferred preparation for graduate study in forest products is an undergraduate degree in forest products, forestry, forest business management, or civil, mining, or forest engineering, or a related field. Students with other backgrounds may be admitted but will usually be required to complete a number of courses to remove the deficiencies in their preparation.

# Courses

See part 6 for courses in Forest Products (ForP).

# Undergraduate Curricular Requirements

## FOREST PRODUCTS (B.S.For.Prod.)

Required course work includes the university requirements (see regulation J-3) and one of the following options.

No more than 25 percent of the course work used for the forest products degree may be taken in business courses (excluding Econ 201 and 202). Specifically, of the 128 credits required, at most 32 credits taken in business courses may be counted toward the degree.

### A. WOOD CONSTRUCTION AND DESIGN OPTION

This option is designed for students interested in residential and light commercial construction or design management positions that emphasize effective use of wood as a structural material. Students may focus in one of two emphasis areas. In the architectural technology emphasis area, the student will develop design skills in addition to a background in business and wood technology for positions in non-licensed design, specification writing, design-build construction, and architectural and construction liaison. Students selecting the wood construction business emphasis area will be prepared for careers that include both supervisory and managerial positions in residential and light commercial building and building materials, sales and marketing of wood products, estimating, banking, insurance, and government agencies that deal with housing. The wood construction and design option can also provide an educational foundation for those wishing to become entrepreneurs in the area of wood construction.

ForP 100 Forest Products Issues and Industries (1 cr)
ForP 250 Principles of Forest Products (2 cr)
ForP 277 Wood Structure and Identification (3 cr)
ForP 337 Physical and Mechanical Properties of Wood (3 cr)
ForP 365 Wood Building Technology (3 cr)
ForP 436 Wood Composites (3 cr)
ForP 437 Wood as a Structural Material (2 cr)
ForP 444 Lumber Manufacturing (3 cr)
ForP 450 Wood Deterioration and Preservation (2 cr)
ForP 480 Senior Project (2 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
Arch 156 Graphic Communication (2 cr)
Arch 255 Advanced Architectural Graphics (3 cr)
Arch 256 Basic Architectural Design (3 cr)
Arch 266 Materials and Methods (3 cr)
Arch 284 Computer-Aided Design (2 cr)
Arch 366 Building Technology I (3 cr)
Arch 463-464 Environmental Control Systems (8 cr)
Arch 475 Professional Practice I (3 cr)
Arch 499 DS: Wood Construct/Design (design project) (2 cr)
BLaw 265 Legal Environmental of Business (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
For 235 Society and Natural Resources (3 cr)
LArc 383 Architectural Site Design (3 cr)
Math 160 Survey of Calculus (4 cr)
Phys 111 General Physics I (4 cr)
Stat 251 Principles of Statistics (3 cr)

And one of the following emphasis areas:

**Architecture Technology Emphasis:**

Arch 453-454 Architectural Design II (6 cr)
Electives chosen from the following (9 cr):
- Arch 476 Professional Practice II
- Art 111-112 Drawing I-II
- Bus 321 Marketing
- Bus 412 Human Resource Management
- Bus 414 Entrepreneurship
- Bus 427 Services Marketing
- ForP 230, 231, 232 Forest Land Measurements

For 320 Dendrology
ID 151 Interior Design
ID 152 Interior Design I
LArc 270 Landscape Construction I
LArc 389 History of Landscape Architecture
Electives to total 128 credits for the degree

**Construction Business Emphasis:**

Acct 381 Accounting for Managers and Investors (3 cr)
Bus 311 Introduction to Management (3 cr)
Electives chosen from the following (9 cr):
ForP 230, 231, 232 Forest Land Measurements
ForP 477 Forest Products Business Management
Bus 261 Real Estate
Bus 321 Marketing
Bus 362 Real Property Appraisal
Bus 364 Insurance
Bus 412 Human Resource Management
Bus 414 Entrepreneurship
Bus 427 Services Marketing
For 320 Dendrology
LArc 270 Landscape Construction
Electives to total 128 credits for the degree

**B. TIMBER HARVESTING OPTION**

This program area prepares students to work as managers and planners for logging operations in small timber harvesting firms, larger forest products companies, forest engineering consulting organizations, and government agencies. The program provides background in development and design of harvesting plans and timber sales, supervision of logging crews, design and layout of roads, management of logging operations, and wood procurement. Other positions can be found in the areas of equipment development and marketing and as technical representatives for equipment companies. Beyond the courses required in the basic sciences and timber harvesting, students may choose course work that will also emphasize technology and engineering or natural resources management.

ForP 100 Forest Products Issues and Industries (1 cr)
ForP 230, 231, 232 Forest Land Measurements (3 cr)
ForP 250 Principles of Forest Products (2 cr)
ForP 277 Wood Structure and Identification (3 cr)
ForP/RRT/Rnge/For/Fish/WLF 302 Wildland Field Ecology (2 cr)
ForP 336 Introduction to the Pulp and Paper Industry (1 cr)
ForP 337 Physical and Mechanical Properties of Wood (3 cr)
ForP 430 Forest Engineering and Harvesting (3 cr)
ForP 431 Production and Cost Control in Forest Industry (3 cr)
ForP 432 Low Volume Forest Roads (3 cr)
ForP 433 Forest Tractor System Analysis (3 cr)
ForP 434 Cable Systems Analysis (3 cr)
ForP 444 Lumber Manufacturing (3 cr)
ForP 450 Wood Deterioration and Preservation (2 cr)
ForP/For/RRT/Rnge/WLF/Fish 470 Interdisciplinary Natural Resource Planning (3 cr)
Chem 101 Introduction to Chemistry I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
For 270 Principles of Forest Ecosystem Management (2 cr)
For 274 Forest Measurement Techniques (1 cr)
For 394 Quantitative Resource Analysis (3 cr)
For 474 Forest Inventory (3 cr)
Soil 205 General Soils (3 cr)
Stat 251 Principles of Statistics (3 cr)
Two of the following (4-6 cr):
Fish/WLF 290 Fish and Wildlife Ecology, Management, and Conservation or Fish 314 Fish Ecology or Fish/Rnge 430 Riparian Ecology and Management
Rnge 251 Principles of Range Resources Management
RRT 287 Professional Foundations of Resource Recreation and Tourism or RRT 487 Field Environmental Education

And one of the following emphasis areas:

**Technical Emphasis**

AgE 351 Hydrology (3 cr)
Biol 102 Biology and Society (4 cr)
CE 316 Advanced and Route Surveys or Geog/LArc 385 GIS Primer (3 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Math 170, 175 Analytic Geometry and Calculus I, II (8 cr)
Phys 211, 212 Engineering Physics I-II (6 cr)
Electives to total 128 cr for the degree

**Resource Emphasis**

Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 203 General Botany (4 cr)
For 320 Dendrology (3 cr)
For 324, 424 Silviculture I-II (4 cr)
For 462 Watershed Management (2 cr)
ForP 365 Wood Building Technology (3 cr)
Geog/LArc 385 GIS Primer (3 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geom and Calculus I (4 cr)
Electives to total 128 cr for the degree

**C. FOREST PRODUCTS BUSINESS MANAGEMENT OPTION**

This program is designed for students who plan careers in the staff or line management of firms in the forest products industry. Graduates are prepared for positions in production management, marketing and distribution of wood products, and in the technical service and support areas of the forest products industry. Students focus on the production, distribution, and marketing of wood products from a combined technical and managerial perspective. The degree also provides a foundation for pursuing a graduate degree in business, for example, the M.B.A. or M.S.

ForP 100 Forest Products Issues and Industries (1 cr)
ForP 250 Principles of Forest Products (2 cr)
ForP 277 Wood Structure and Identification (3 cr)
ForP 337 Physical and Mechanical Properties of Wood (3 cr)
ForP 425 Forest Products Marketing (3 cr)
ForP 430 Forest Engineering and Harvesting (3 cr)
ForP 431 Production and Cost Control in Forest Industry (3 cr)
ForP 436 Wood Composites (3 cr)
ForP 438 Wood Chemistry and Adhesives (3 cr)
ForP 444 Lumber Manufacturing (3 cr)
ForP 450 Wood Deterioration and Preservation (2 cr)
ForP/For/RRT/WLF/Rnge/Fish 470 Interdisciplinary Natural Resource Planning (3 cr)
ForP 477 Forest Products Business Management (3 cr)
ForP 498 Renewable Natural Resources Internship (1 cr)
Acct 201 Introduction to Financial Accounting and Acct 202 Introduction to Managerial Accounting (6 cr), or Acct 205 Fundamentals of Accounting (4 cr)
Biol 102 Biology and Society (4 cr)
BLaw 265 Legal Environment of Business (3 cr)
Bus 301 Financial Management (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 321 Marketing (3 cr)
Bus 370 Production/Operations Management (3 cr)
Bus 424 Pricing Strategy and Tactics
Bus/Stat 456 Quality Management (3 cr)
Chem 101 Introduction to Chemistry I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
For 270 Principles of Forest Ecosystem Management (2 cr)
For 302 Wildland Field Ecology or ForP 480 Senior Project (2 cr)
For 320 Dendrology or LArc 288 Plant Materials I (3 cr)
Math 160 Survey of Calculus (4 cr)
Phys 111 General Physics I (3 cr)
Stat 251 Principles of Statistics (3 cr)
Two of the following (4-5 cr)

Fish/WLF 290 Fish and Wildlife Ecology, Management, and Conservation or Fish 314 Fish Ecology or Fish/Rnge 430 Riparian Ecology and Management
Rnge 251 Principles of Range Resources Management
RRT 287 Professional Foundations of Resource Recreation and Tourism or RRT 487 Field Environmental Education
Electives to total 128 cr for the degree

**D. PULP AND PAPER TECHNOLOGY OPTION**

This innovative cooperative program allows the student to take advantage of courses at both UI and the University of Minnesota. Senior year courses are taken at the University of Minnesota through an exchange program. Students receive their degree from UI. Graduates are prepared for employment in the pulp and paper industry as process engineers and this entry position can lead to careers in pulp and paper mills in areas such as production engineering, plant supervision, and quality control. Demand for graduates is high and salaries are similar to those of engineering graduates with the pulp and paper industry projecting good growth over the next two decades.

ForP 100 Forest Products Issues and Industries (1 cr)
ForP 250 Principles of Forest Products (2 cr)
ForP 277 Wood Structure and Identification (3 cr)
ForP 420 Pulp and Paper Technology (3 cr)
ForP 431 Production and Cost Control in Forest Industry or ForP 462 Analysis of Production Systems (2-3 cr)
ForP 438 Wood Chemistry (3 cr)
ForP 463 Pulp and Paper Process Lab (2 cr)
ForP 464 Pulp and Paper Process Calculations (2.7 cr)
ForP 465 Pulp and Paper Process Operations (2.7 cr)
ForP 466 Paper Engineering Lab (1.3 cr)
ForP 467 Coated Product Development (1.3 cr)
ForP 469 Surface and Colloid Chemistry of Papermaking (2 cr)
ForP 471 Pulp and Paper Process Dynamics and Control (2 cr)
ForP 472 Biological and Environmental Science of Pulp and Paper (2 cr)
ChE 123 Computations in Chemical Engineering (2 cr)
ChE 223 Material and Energy Balances (3 cr)
Chem 111-112 Principles of Chemistry I-II (9 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Chem 302 Principles of Physical Chemistry (3 cr)
Chem 372 Organic Chemistry II (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201, 202 Principles of Economics (6 cr)
Engr 210 Engineering Statics (3 cr)
Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Engl 317 Technical Writing (3 cr)
For 270 Principles of Forest Ecosystem Management (2 cr)
For/RRT 235 Society and Natural Resources (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211, 212 Engineering Physics I, II (6 cr)
Stat 301 Probability and Statistics (3 cr)
Electives to total 128 cr for the degree

# Academic Minor Requirements

## FOREST PRODUCTS MINOR

For students in business, engineering, forestry, or vocational education who wish to gain specific background and knowledge related to the forest products industry.

ForP 250 Principles of Forest Products (2 cr)
ForP 277 Wood Structure and Identification (3 cr)
ForP 430 Forest Engineering and Harvesting (3 cr)
Electives in forest products (10 cr)

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Forest Products. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** Programs are offered with specialization in the areas mentioned above.

**Doctor of Philosophy.** Through the Department of Forest Products, students seeking the Ph.D. degree in natural resources may specialize in the areas mentioned above. See the NR section in part 3 for details.

# Department of Forest Resources

**Jo Ellen Force, Dept. Head (204 CNR Bldg. 83844-1133; phone 208/885-7952; e-mail fores@uidaho.edu).** ***Faculty:*** **Steven J. Brunsfeld, Stephen P. Cook, Lauren Fins, Jo Ellen Force, Paul E. Gessler, Charles R. Hatch, Kathleen L. Kavanagh, Timothy E. Link, Gary E. Machlis, Ronald L. Mahoney, John D. Marshall, Charles W. McKetta, James A. Moore, Penelope Morgan, Leon F. Neuenschwander, A. George Newcombe, Jay O'Laughlin, Harold L. Osborne, Andrew P. Robinson, Molly W. Stock, David L. Wenny.** ***Adjunct Faculty:*** **Mee-Sook Kim, Robert L. Mahler, Jean E. McKendry, M. Henry Robison, Michael J. Scott, Eva Strand, Michael R. Whiteman.**

The Department of Forest Resources offers programs leading to the degrees of: Bachelor of Science in Forest Resources, with a business minor option, or options in forest ecosystem management and science; Master of Science (thesis and nonthesis options); and Doctor of Philosophy with a major in natural resources (administered at the college level for all departments).

**Bachelor of Science in Forest Resources.** Forestry is "managing and using for human benefit the forest lands and natural resources that occur on and in association with forest lands." These benefits may include values, services, or products such as stable human communities, aesthetics, biodiversity, recreational opportunities, clean water and air, soil protection, forage, fish and wildlife, medicinal and ornamental items, wood products, and many others.

One-third of the nation's land area and 40 percent of Idaho's land area are forested. It is imperative that the managers of these lands and of the valuable resources thereon be properly prepared for the task of providing on a sustainable basis the many values, services, and goods desired and demanded by the people. With an increasingly restricted forest land base and an increasing demand for forest benefits, the practice of forestry is rapidly becoming more complex. Present-day forest management requires professionals highly trained in an interdisciplinary approach that adapts to scientific developments and sociological and economic constraints while sustaining healthy forest ecosystems.

The instructional goal of the Department of Forest Resources is to provide both undergraduate and graduate students of all nationalities with a high-quality general education and the professional knowledge of significant concepts, multiple use principles, social factors, and technical details of forest resources biology, measurements, management, and social science to effectively manage forest resources.

To attain this goal, the departmental faculty and administration will: emphasize the dynamic nature of the sciences and technologies by teaching new concepts and methods and revising the curriculum as necessary; stress understanding rather than rote learning of facts and principles; provide challenging programs to develop individual talents and interests; maintain class sizes in laboratory and field-oriented courses at a level commensurate with instructional effectiveness; maintain student-faculty ratios that allow for more personalized instruction and advising; expand and improve instructional facilities; develop more efficient and effective instructional techniques; expand field-oriented programs, especially at the Experimental Forest and the Forest Nursery, at Moscow and other field stations; encourage and assist students in finding seasonal professional employment and opportunities for involvement in student clubs and professional organizations; and encourage development and research programs for faculty to increase their abilities to pass their knowledge on to others.

The forest resources curriculum not only provides students with an interdisciplinary education, but also the opportunity to emphasize areas of individual interest, such as ecology, forest ecosystem processes, forest social sciences, computer applications in forestry, aerial-photo interpretation (remote sensing), geographic information systems, silviculture, forest genetics and tree improvement, protection against insects, disease, and fire, tree nursery management, and other specialties by selective use of elective credits.

The three specialty options in the forest resources curriculum provide each student with an opportunity to select a course of study suited to his or her primary career goal. The business minor option combines basic forest biological skills with the business management and administrative skills necessary for such positions in both public and private forestry. The forest ecosystem management option involves the study and maintenance of sustainable ecosystems for a wide variety of resource values with an emphasis on the production of renewable commodities, especially timber. The science option provides flexibility of curricular programming for the student who has specific curricular objectives not readily obtainable under the other options. The latter is particularly attractive for the student who anticipates going on to graduate study. Entry into the science option requires an application, sophomore standing, and one semester in residence. A 3.00 grade-point average must be maintained on an academic year basis for all subsequent course work completed after acceptance into the option. The program for each student is individually designed by the student in consultation with and approval of the committee and appropriate advisors. A two-week summer session immediately following the sophomore year is required for all options.

The educational programs in the business minor option, forest ecosystem management, and science, leading to the first professional degree in forestry of Bachelor of Science in Forest Resources, are accredited by the Society of American Foresters (SAF). SAF is the specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation as the accrediting agency for forestry in the United States.

**Graduate Programs.** There are over 20 million acres of forested land in Idaho with varied ownership and practices. This resource provides excellent study opportunities for graduate students in forest resources. Graduate programs are offered in most areas of specialization of forest resources, including administration/policy, community/social forestry, ecology/ecosystem processes, extension, fire ecology/management, genetics/tree improvement/ecogenetics, hydrology/watershed management, land use planning, management decision analysis, mensuration/inventory, growth and yield, nursery management, remote sensing/geographic information systems, silviculture, sociology of natural resources, forest ecosystem management/sustainable forestry, tree physiology,

restoration/conservation biology, renewable resource economics, environmental studies/management, forest investment/business and finance, forest protection/entomology/pathology, and regeneration.

Admission to the program is based on: evidence of ability to complete graduate-level work as discerned from undergraduate transcripts, the applicant's statement of career objectives, and letters of recommendation; the compatibility of the student's educational and career objectives with faculty expertise and departmental objectives; and availability of graduate faculty to act as major advisor for an applicant. The GRE is required. An undergraduate degree related to our programs is also recommended but an applicant may be accepted with the understanding that certain course deficiencies may be required by the student's advisory committee.

Further information can be obtained from the department head (208/885-7952).

## Courses

See part 6 for courses in Forest Resources (For).

## Undergraduate Curricular Requirements

### FOREST RESOURCES (B.S.For.Res.)

Students pursuing a B.S. degree in forest resources (all options) must have received a grade of C or better in the following indicator courses to register for upper-division courses in forest resources and to graduate with a B.S.For.Res.: Math 160 and Stat 251. Students must also have a minimum cumulative grade-point average of 2.00 in forest resource (For) courses to qualify for the B.S. degree in forest resources (all options).

The minimum number of credits for the degree is 128. This does not include Math 143, Phys 100 or 111 or high school physics, and other courses that might be required to remove deficiencies.

Required course work includes the university requirements (see regulation J-3) and:

For 102 Introduction to Forest Management (1 cr)
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
For 270 Principles of Forest Ecosystem Management (2 cr)
For 274 Forest Measurement Techniques (1 cr)
For/Rnge/RRT/WLF/ForP/Fish 302 Wildland Field Ecology (2 cr)
For 394 Quantitative Resource Analysis (3 cr)
For/Rnge/RRT/WLF/ForP/Fish 470 Interdisciplinary Natural Resource Planning (3 cr)
Two of the following courses (4-6 cr)
- Fish/WLF 290 Fish and Wildlife Ecology, Management, and Conservation or Fish 314 Fish Ecology or WLF 314 Wildlife Ecology I
- ForP 250 Principles of Forest Products
- Rnge 251 Principles of Range Resources Management
- RRT 287 Principles of Resource Recreation and Tourism Management

Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 203 General Botany (4 cr)
Chem 101 Introduction to Chem I or Chem 111 Principles of Chem I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
Engl 317 Technical Writing or Engl 313 Business Writing (3 cr)
ForP 230, 231 Forest Land Measurements I-II (2 cr)
Geol 101 Physical Geology (4 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geom and Calculus (4 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Stat 251 Principles of Statistics (3 cr)
Humanities and social science courses (11 cr)

And one of the following options:

**A. Business Minor Option**

For 320 Dendrology (3 cr)
For 324 Silviculture I (2 cr)
For 375 Airphoto Interpretation and Mapping (3 cr)
For 383 Economics for Natural Resource Managers (3 cr)
For 424 Silviculture II (2 cr)
For 462 Watershed Management (2 cr)
For 474 Forest Inventory and Mensuration (3 cr)

For 476 Forestry Project Evaluation or For 477 Integrated Forest Management Models (3 cr)
Business academic minor (27-29 cr)
Electives to total 128 credits for the degree

**B. Forest Ecosystem Management Option**

For 320 Dendrology (3 cr)
For 324 Silviculture I (2 cr)
For 330 Forest Ecosystem Processes (3 cr)
For 375 Airphoto Interpretation and Mapping (3 cr)
For 383 Economics for Natural Resource Managers (3 cr)
For 424 Silviculture II (2 cr)
For 462 Watershed Management (2 cr)
For 466 Diseases and Insects of Woody Plants (3 cr)
For 474 Forest Inventory and Mensuration (3 cr)
ForP 430 Forest Engineering and Harvesting (3 cr)
Ecology restrictive elective--choose one of the following (2-4 cr):
- Fish 314 Fish Ecology (3 cr)
- Fish/Rnge 430 Riparian Ecology and Management (2 cr)
- Fish 415 Limnology (4 cr)
- For 426 Wildland Fire Management and Ecology (3 cr)
- Rnge 459 Rangeland Ecology (3 cr)
- WLF 314 Wildlife Ecology I (3 cr)
- WLF 316 Wildlife Ecology II (3 cr)

Decision-analysis restrictive elective--choose one of the following (3 cr):
- For 476 Forestry Project Evaluation
- For 477 Integrated Forest Management Models

Social/political environment restrictive elective (2-3 cr):
- For 484 Forest Policy and Administration (2 cr)
- PolS 464 Politics of the Environment (3 cr)
- RRT 486 Public Involvement in Natural Resource Management (3 cr)
- WLF/Rnge 493 Environmental Law (2 cr)

Electives to total 128 credits for the degree

**C. Science Option**

This option is designed for students who have specific curricular objectives not readily obtainable under the other options. Entry requires an application, sophomore standing, and one semester in residence. A 3.0 grade-point average must be maintained on an academic year basis for all subsequent course work completed after acceptance into the option.

For 497 Senior Thesis or For 498 Renewable Natural Resources Internship (2 cr)
Quantitative electives (6 cr)
Professional electives (12 cr)
Natural or social science electives (other than UI core) (12 cr)
Electives to total 128 credits for the degree

### NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Natural Resources" in Part 5.

## Academic Minor Requirements

### FIRE ECOLOGY AND MANAGEMENT MINOR

For 426 Wildland Fire Management and Ecology (3 cr)
For 427 Prescribed Burning Laboratory (2 cr)
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
For 394 Quantitative Resource Analysis or Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
One or more of the following (2-3 cr):
- For 330 Forest Ecosystem Processes
- Rnge 459 Rangeland Ecology
- For 429 Landscape Ecology
- For 424 Silviculture II
- Rnge 354 Wildland Vegetation Management and Restoration
- RRT 490 Wilderness Management
- WLF 492 Wildlife Management
- WLF 445 Nongame Management

ForP 430 Forest Engineering and Harvesting
For 476 Forestry Project Evaluation
For 484 Forest Policy and Administration
One of the following courses (3 cr):
Geog 301 Meteorology
Geog 401 Climatology
One of the following courses (1-3 cr):
Geog 385 GIS Primer
Geog 475 Geographic Information Systems
NR 402 GIS Applications in Natural Resources
To complete this minor, students must complete a minimum of 18 credits from the list above.

### FOREST RESOURCES MINOR

For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
For 235 Society and Natural Resources (3 cr)
For 270 Principles of Forest Ecosystem Management (2 cr)
For 320 Dendrology (3 cr)
For 484 Forest Policy and Administration (2 cr)
One of the following courses (3 cr)
For 375 Airphoto Interpretation and Mapping
For 383 Economics for Natural Resource Managers
For 474 Forest Inventory and Mensuration
One of the following courses (2-3 cr)
For 330 Forest Ecosystem Processes
For 426 Wildland Fire Management and Ecology
For 462 Watershed Management
ForP 430 Forest Engineering and Harvesting
Rnge 430 Riparian Ecology and Management
WLF 314 Wildlife Ecology I

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Natural Resources.

**Master of Science.** Thesis and nonthesis options are offered. (A) Thesis option: General M.S. requirements apply. However, the thesis may be comprised of a manuscript(s) in a form acceptable for publication in a refereed journal, while otherwise fulfilling format requirements of the Graduate College. (B) Nonthesis option: General M.S. requirements apply. A written and/or oral examination that covers graduate course work must be taken during the final semester in residence. At least one professional paper is required and will be evaluated by the candidate's supervisory committee.

**Doctor of Philosophy.** The Ph.D. degree is available with a major in natural resources. General Ph.D. requirements apply; see the NR section for details.

# Department of Geography

**Harley E. Johansen, Dept. Head (203 McClure Bldg. 83844-3021; phone 208/885-6216; e-mail geog@uidaho.edu; http://www.mines.uidaho.edu/geography).** ***Faculty:*** **Vladimir Aizen, Kang-Tsung Chang, Karen S. Humes, Piotr Jankowski, Harley E. Johansen, Allan Jokisaari, Gundars Rudzitis, Sam M. W. Scripter, Von P. Walden.** ***Adjunct Faculty:*** **Elena M. Loktionova.** ***Affiliate Faculty:*** **Hengchun Ye.**

Geography explores the distribution and interaction of natural and human systems on global, regional, and local scales. Environmental issues involving natural resources, population, political, and economic systems are the subject of much geographic inquiry, along with practical issues in planning and resource management. Selecting locations, or designing optimal development or delivery systems are geographic problems common to business and government around the world. Geographic training in geographic information systems (GIS), remote sensing, spatial analysis, and cartography, along with knowledge of patterns and processes inherent in natural and human social systems provides the background necessary to work in the expanding fields of GIS applications and scientific or applied geography.

To prepare students for many rewarding and important career opportunities, the Department of Geography, in the College of Mines and Earth Resources, offers the following undergraduate degree programs: B.S. Geography with options in physical environment and earth resources, mineral property and land management, applied economic geography, and generalist; and B.S. Cartography with options in cartography and GIS.

Recent shifts in personnel have strengthened the department's programs in GIS, climatology, and economic geography. The department also has a fast expanding remote sensing program, with addition of new faculty, and a new remote sensing lab.

The department has over 50 undergraduate and 30 graduate majors. Students benefit from close contact with their instructors and hands-on experience with their course work and through internships with industries and agencies involved in geographic and cartographic activities.

**Graduate Programs.** M.S. and Ph.D. degrees in geography are offered. Geography graduate programs provide training in research methods and applications of theory and spatial modeling to problems in regional development, cartography, and the physical environment. Students learn problem definition, research design, and data analysis using a variety of techniques including GIS, remote sensing, spatial analysis, and computer assisted cartography. Students without an undergraduate degree in geography are usually required to complete some undergraduate courses in the department to provide adequate background.

**Career Opportunities.** Geography and GIS applications continue to be one of the fast-growing job markets world wide. Most jobs today involve the use and adaptation of geographic information systems in both the public and private sectors. Geographers also work in industry using their skills in research, locational analysis, site selection, mapping, and management of geographical information, with the aid of computers. Industrial jobs for geographers range from research, planning, and data management in primary resources to deciding where to locate a new supermarket or shopping mall. Many jobs for geographers involve computer mapping or GIS. Cartographers from our program are employed in a variety of positions working with map design, graphics, and production cartography. We have recently designed a program leading to GIS analyst positions, available under the B.S. Cartography. The department arranges student internships with industries and agencies to provide on-the-job training and maintains a close relationship with the UI Career Services Center to aid students in their search for employment.

Faculty members in the department will answer questions about specific programs and courses. Prospective majors in geography or cartography should contact the department head (telephone 208/885-6216), or visit the department's web site at http://www.mines.uidaho.edu/geography.

## Courses

See part 6 for courses in Geography (Geog).

## Undergraduate Curricular Requirements

### GEOGRAPHY (B.S.Geog.)

This program is offered through the College of Mines and Earth Resources. Required course work includes the university requirements (see regulation J-3) and:

Geog 100 Physical Geography (4 cr)
Geog 180 Spatial Graphics (3 cr)
Geog 200 World Regional Geography (3 cr)
Geog 240 Economic Geography or Geog 165 Human Geography (3 cr)
Geog 380 Cartography and Graphic Communication (3 cr)
Geog 385 GIS Primer (3 cr)
Stat 251 Principles of Statistics (3 cr)

And completion of one of the following options (a list of recommended electives may be obtained from the departmental office; students interested in pursuing graduate studies are advised to emphasize analytical techniques in their choice of electives):

**A. PHYSICAL ENVIRONMENT AND EARTH RESOURCES OPTION**

This option emphasizes the interaction between natural environmental systems and human activities. Students gain a knowledge of major issues in the utilization and management of earth resources as they relate to the natural environment. They also acquire the skills necessary to solve practical problems related to resource development.

Geog 301 Meteorology or Geog 401 Climatology (3 cr)
Geog 315 Geomorphology (3 cr)
Geog 483 Remote Sensing/GIS Integration (3 cr)
Geog 491 Field Techniques (3 cr)
Engl 317 Technical Writing (3 cr)
Stat 401 Statistical Analysis (3 cr)
Courses chosen from the following (21 cr):
- Geog 427 Decision-Making in Resource Management
- Geog 444 Environmental Assessment
- Geog 470 Computer Mapping
- Geog 475 Geographic Information Systems
- Geog 484 Intermediate Digital Image Processing
- Chem 101 Intro to Chem I or Chem 111 Principles of Chem I
- CE 211 Engr Measurements or 218 Elementary Surveying
- CS 112 Intro to Problem Solving and Programming
- For 375 Airphoto Interpretation and Mapping
- Math 143 Pre-calculus Algebra and Analytic Geometry
- Math 160 Survey of Calculus
- Phys 111 General Physics I

Courses chosen from the following (9 cr):
- Geog 301 Meteorology or 401 Climatology
- Geog 316 Processes in Glacial/Periglacial Environments
- Geog 364 Idaho and the Pacific Northwest
- AgE 351 Hydrology
- For 462 Watershed Management
- Geol 101 Physical Geology
- Geol 309 Groundwater
- Geol 360 Geologic Hazards
- Geol 361 Geology and the Environment
- Soil 205 General Soils

Electives to total 128 cr for the degree

**B. APPLIED ECONOMIC GEOGRAPHY OPTION**

This option is designed to prepare students for employment opportunities in business and industry and also in the field of planning at the regional or community scale. It emphasizes the locational aspects of economic activity and economic decision making. Students will gain an understanding of geographical patterns of markets, transactions and trade, transportation, production and consumption, industrial processing, and other aspects of the spatial economy. With this option, most students can go on to complete master's degrees in business administration or geography within one year or move directly into a growing area of employment for the business-oriented geographer.

Geog 165 Human Geography (3 cr)
Geog 240 Economic Geography (3 cr)
Geog 330 Urban Geography (3 cr)
Geog 340 Business Location Decisions (3 cr)
Geog 346 Transportation (3 cr)
Geog 427 Decision-Making in Resource Management (3 cr)
Bus 321 Marketing (3 cr)
Econ 201, 202 Principles of Economics (6 cr)
Econ 430 Regional/Urban Economics (3 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Stat 401 Statistical Analysis (3 cr)
Courses chosen from the following (9 cr):
- Geog 378 Interactive Cartography
- Geog 470 Computer Mapping
- Geog 497 Practicum (internship with a company or agency)
- Bus 421 Marketing Research and Analysis
- Econ 352 Intermediate Microeconomic Analysis
- LArc 490 Computer-Aided Regional Landscape Planning
- Math 170 Analytic Geometry and Calculus I
- Math 326 Linear Programming

Courses chosen from the following (9 cr):
- Geog 360 Population Dynamics and Distribution

Geog 365 Political Geography
AgEc 332 Economics of Agricultural Development
AgEc 451 Land and Natural Resource Economics
Bus 425 Retail Distribution Management
Econ 385 Environmental Economics
Econ 415 Market Structure and Governmental Policy
Econ 446 International Economics
Electives to total 128 cr for the degree

**C. MINERAL PROPERTY AND LAND MANAGEMENT OPTION**

This option is designed to provide a background in land-use decision making and land management. Emphasis is on mineral properties, but the techniques also apply to other resources. Courses include locational, socioeconomic, environmental, and legal aspects of land management to prepare the student for either employment or advanced study in this growing profession.

Geog 315 Geomorphology or Geog 301 Meteorology or Geog 401 Climatology (3 cr)
Geog 330 Urban Geography or Geog 346 Transportation or Geog 360 Population Dynamics (3 cr)
Geog 420 Land, Resources, and Environment (3 cr)
Geog 470 Computer Mapping or Geog 378 Interactive Cartography (3 cr)
Geog 492 Mineral Industry Case Studies (3 cr)
AgEc 451 Land and Natural Resource Economics or Econ 430 Regional/Urban Economics or Econ 385 Environmental Economics (3 cr)
Bus 362 Real Property Appraisal (3 cr)
CE 218 Elementary Surveying (2 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
Econ 201, 202 Principles of Economics (6 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
PolS 451 Public Administration or PolS 452 Administrative Law and Regulation (3 cr)
Stat 401 Statistical Analysis (3 cr)
Approved geography electives (12 cr)
Electives to total 128 cr for the degree

**D. GENERAL OPTION**

For students interested in geography but not in one of the specialty options, this option allows them to design their own curricula with the approval of a geography faculty advisor.

Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Approved electives in geography (not incl Geog 280, 480) (27 cr)
Approved electives to total 128 cr for the degree

## GEOGRAPHY (B.A. or B.S.)

This program is offered through the College of Letters and Science. Required course work includes the university requirements (see regulation J-3), the general College of L&S requirements for either the B.A. or B.S. degree, and:

Geog 100 Physical Geography (4 cr)
Geog 165 Human Geography (3 cr)
Geog 200 World Regional Geography (3 cr)
Geog 240 Economic Geography (3 cr)
Geog 380 Cartography and Graphic Communication (3 cr)
Geog 490 Trends in Geography (3 cr)
Geol 101 Physical Geology (4 cr)
Geography electives (upper-division) (18 cr)
Related fields approved by the Dept of Geography (20 cr)

## CARTOGRAPHY (B.S.Cart.)

This program is offered through the College of Mines and Earth Resources. Required course work includes the university requirements (see regulation J-3) and:

Geog 100 Physical Geography (4 cr)
Geog 180 Spatial Graphics (3 cr)
Geog 200 World Regional Geography (3 cr)
Geog 280 Cartographic Production Techniques (4 cr)
Geog 378 Interactive Cartography (3 cr)
Geog 380 Cartography and Graphic Communication (3 cr)
Geog 385 GIS Primer (3 cr)
Geog 470 Computer Mapping (3 cr)
Geog 475 Geographic Information Systems (3 cr)

Geog 483 Remote Sensing/GIS Integration (3 cr)
Geog 497 Practicum (3-6 cr)
CE 211 Engineering Measurements or 218 Elementary Surveying (2-4 cr)
CS 112 Intro to Problem Solving and Programming (3 cr)
Engr 105 Engineering Graphics (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
For 375 Airphoto Interpretation and Mapping (3 cr)
For 472 Remote Sensing of Environment (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geometry and Calculus I (4 cr)
Stat 251 Principles of Statistics (3 cr)
Stat 401 Statistical Analysis (3 cr)

And one of the following options:

**A. CARTOGRAPHY OPTION**

This option emphasizes graphic design and communication and both computerized and conventional techniques of production cartography. It provides extensive applied professional cartographic training and exposure to theoretical-research oriented aspects of the field. Students who complete this option should be capable of eventually occupying supervisory positions in graphic sections or organizations producing maps and allied graphic products. To provide these students with a realistic education, the department has developed a modern, fully equipped graphic arts laboratory (Cart-O-Graphics) that has the capacity to execute all necessary map-making functions from original drafting or scribing to press-ready printing plates. The laboratory provides talented and interested students with the opportunity to solve real cartographic problems, gaining professional experience, academic credit, and income.

Geog 315 Geomorphology (3 cr)
Advisor-approved electives to total 128 cr for the degree

**B. GIS OPTION**

This option focuses on teaching theoretical fundamentals, techniques, and practical applications of modern geoprocessing using spatial analysis and information systems technology. It is intended to educate specialists in GIS and Spatial Analysis who have a solid grasp of cartographic principles, computational technology, and the knowledge of substantive issues involved in geoprocessing applications.

CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
CS 360 Database Systems (3 cr)
Math 176 Discrete Mathematics (3 cr)
Advisor-approved electives to total 128 cr for the degree

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Geography. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science (Thesis Option).** Scores on the Graduate Record Examination (aptitude section) are required for admission. Each student's training and research plan is developed by the student and the major professor with the advisory committee's approval. It is expected that student programs be compatible with the specialties of the departmental faculty.

**Master of Science (Nonthesis Option).** Scores on the Graduate Record Examination (aptitude section) are required for admission. This program is designed for individuals who wish to place less emphasis upon research in their plan of study with additional courses substituted for thesis credit, the submittal of two reviewed papers and a practical exercise, and an oral examination before the student's committee required for the degree.

**Master of Arts in Teaching--Major in Geography.** General M.A.T. requirements apply. A plan of study will be arranged in conference with the student's advisor upon admission to the program. Examination procedures are the same as in the nonthesis option, including submittal of two review papers and a practical exercise, and an oral examination before the student's committee.

**Doctor of Philosophy.** General Ph.D. requirements apply. An M.S. degree is required. Scores on the Graduate Record Examination (aptitude section) are required for admission. Admission is by faculty approval based on evaluation of the applicant's research potential. Each student's study plan is approved by the departmental faculty. If a student wishes to pass over a course based on prior training or experience, he or she will have to pass the equivalent of a final examination in the course. It is expected that the study plan will be compatible with the goals and direction of the department.

# Department of Geological Sciences

**Dennis J. Geist, Dept. Head (322 Mines Bldg. 83844-3022; phone 208/885-6192).** ***Faculty:*** **Earl H. Bennett II, John H. Bush, Jr., Valerie E. Chamberlain, Jerry P. Fairley, Dennis J. Geist, Mickey E. Gunter, Peter E. Isaacson, Gary S. Johnson, Simon A. Kattenhorn, William C. McClelland, Leland L. Mink, John S. Oldow, James Osiensky, Kenneth F. Sprenke, Scott A. Wood.** ***Adjunct Faculty:*** **Bill Bonnichsen, Roy M. Breckenridge, Virginia Gillerman, Michael J. Nicholl, Kurt L. Othberg, Roger C. Stewart, John A. Welhan, Barbara Cooke Williams, Thomas J. Williams.**

Geology is the study of the origin and evolution of the earth, utilizing the principles of chemistry, physics, and biology and the unifying concepts of geologic time and plate tectonics. The applied aspects of geology include the search for ores, industrial minerals, petroleum, coal, and water; the assessment of geologic hazards associated with earthquakes, volcanoes, and landslides; and the study of the global environment. Also included in these studies are geologic aspects of waste disposal and pollution abatement.

The bachelor's degrees is offered in geology that emphasizes field and applied science along with theory. The program requires effective use of English in written and oral reports. It is the goal of the department that our graduates not only be ready for immediate employment, but also that they have the broad education that will help them to grow professionally, be successful in graduate school, and advance through positions of greater responsibility during their careers.

The geology program provides the student with the necessary background courses in basic sciences and mathematics plus a spectrum of courses in the subdisciplines of geology, including mineralogy, petrology, paleontology, stratigraphy, structural geology, geomorphology, geochemistry, and geophysics. A well-rounded education is obtained through additional courses in the humanities and social sciences. Specialized elective courses can be chosen to prepare for various careers such as exploration for minerals or petroleum, the search for and management of ground water, and preparation for advanced studies in graduate school.

A minor in geology is offered for students in allied fields who have an interest in geology. The minor curriculum can be tailored to meet the needs of individual students.

Research laboratories are equipped for work in applied geochemistry, geophysics, petrology, economic geology, paleontology, hydrogeology, geochronology, structural analysis, tectonics, and geomechanics. Laboratories are maintained for work in all of the basic courses, with large study collections of fossils, rocks, minerals, crystal models, ore suites, thin sections, polished sections, and topographic and geologic maps. Equipment used in advanced courses includes several sets of microscopes, photomicrographic apparatus, x-ray diffraction equipment, and a variety of instruments for geochemical analysis. Also available are computers, resistivity survey equipment, gravity meters, GPS receivers, seismographs, magnetometer, soil drilling and sampling kits, and water-level recorders.

The department offers Master of Science degrees in geology, geophysics, and hydrology. Theses are required in the first two programs (i.e., geology and geophysics), whereas a nonthesis option is available in hydrology. A nonthesis program is also available in the Master of Arts in Teaching (major in earth science). The Doctor of Philosophy is offered in geology.

The undergraduate preparation expected of the entering graduate candidates depends upon the degree sought. Some of our most promising graduate students have come to us with bachelor's degrees in other subjects. Deficiencies for master's candidates are determined by the major professor. No special requirements exist as to deficiencies of candidates for the Master of Arts in Teaching. Candidates for the Doctor of Philosophy in geology are expected to have earned a master's degree in geology.

**BSU-ISU Cooperative Programs.** The department participates in cooperative programs with the Earth Science Departments at Boise State University and at Idaho State University. Students interested in pursuing bachelor's degrees in geology or geophysics at those institutions may take transferable preparatory courses at UI. The master's degree in geophysics at UI is fully cooperative and students may take courses or perform research at any of the three institutions.

## Courses

See part 6 for courses in Geology (Geol), Geophysics (Geop), and Hydrology (Hydr).

## Undergraduate Curricular Requirements

### GEOLOGY (B.S.Geol.)

Required course work includes the university requirements (see regulation J-3) and:

Geol 101 or 111 Physical Geology (4 cr)
Geol 102 Historical Geology (4 cr)
Geol 249 Mineralogy and Optical Mineralogy (4 cr)
Geol 301 Computer Geology (2 cr)
Geol 324 Principles of Stratigraphy and Sedimentation (4 cr)
Geol 326 Igneous and Metamorphic Petrology (4 cr)
Geol 345 Structural Geology (3-4 cr)

Geol 401 Field Geology and Report Writing (6 cr)
Geol 423 Principles of Geochemistry (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Engl 317 Technical Writing (3 cr)
Geop 422 Principles of General Geophysics (3 cr)

And the completion of one of the following options and electives approved by the advisor to total 128 credits for the degree.

**A. GENERAL GEOLOGY OPTION**

Geol 212 Principles of Paleontology (4 cr)
Geol 335 Geomorphology (3 cr)
Math 160 Survey of Calculus or 170 Analytic Geometry and Calculus I (4 cr)
Math 175 Analytic Geometry and Calculus II or Math 330 Linear Algebra or Stat 251 Principles of Statistics (3-4 cr)
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II (8 cr)
Advisor-approved electives in geology (9 cr)

**B. HYDROGEOLOGY OPTION**

Geol 309 Groundwater or Hydr 463 Hydrogeology (3 cr)
Geol 410 Techniques of Groundwater Study (3 cr)
Math 170, 175 Analytic Geometry and Calculus I-II (8 cr)
Stat 251 Principles of Statistics or 301 Probability and Statistics (3 cr)
Phys 211-212 Engineering Physics I-II (8 cr)
Hydrogeology electives chosen from the following, including at least 6 credits in Hydr courses (18 cr)
- BAE 351 Hydrology (3 cr)
- BAE 451 Engineering Hydrology (3 cr)
- ChE 470 Hazardous Waste Management (3 cr)
- Engr 210 Engineering Statics and 335 Engr Fluid Mechanics (6 cr)
- Geog 385 GIS Primer (3 cr)
- GeoE 428 Geostatistics (3 cr)
- Geol 478 Advanced Geochemistry of Natural Waters (3 cr)
- Hydr 412 Environmental Hydrogeology (3 cr)
- Hydr 463 Hydrogeology (3 cr)
- Hydr 468 Aquifer Test Design and Analysis (3 cr)
- Hydr 470 Groundwater Remediation (3 cr)
- Hydr 472 Groundwater Management (3 cr)
- Hydr 475 Design and Construction of Water Wells (3 cr)
- Math 275 Analytic Geometry and Calculus III (3 cr)
- Soil 205, 206 General Soils and Lab and 415 Soil Physics (7 cr)
- Soil 419 Solute Transport in Porous Media (2 cr)

**C. RESOURCE EXPLORATION OPTION**

Geol 212 Principles of Paleontology (4 cr)
Geol 485 Geochemical Exploration (3 cr)
GeoE 475 Mineral Deposits (4 cr)
GeoE 476 Exploration Methods (3 cr)
Geop 420 Exploration Geophysics (3 cr)
Econ 272 Foundations of Economic Analysis (4 cr)
Math 160 Survey of Calculus or 170 Analytic Geom and Calculus I (4 cr)
Math 175 Analytic Geometry and Calculus II or 330 Linear Algebra (3-4 cr)
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II (8 cr)
Stat 251 Principles of Statistics or 301 Probability and Statistics (3 cr)

**D. ENVIRONMENTAL GEOLOGY OPTION**

Geol 212 Principles of Paleontology (4 cr)
Geol 309 Groundwater (3 cr)
Geol 335 Geomorphology (3 cr)
Geol 360 Geologic Hazards (3 cr)
Geol 361 Geology and the Environment (3 cr)
Math 160 Survey of Calculus or 170 Analytic Geom and Calculus I (4 cr)
Math 175 Analytic Geometry and Calculus II or Math 330 Linear Algebra or Stat 251 Principles of Statistics (3-4 cr)
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II (8 cr)
Environmental geology electives chosen from the following (9 cr):
- BAE 351 Hydrology (3 cr)
- BAE 433 Bioremediation (3 cr)
- BAE 452 Environmental Water Quality (3 cr)
- Biol 112 Biological Principles and Mechanisms (4 cr)
- Chem 275, 276 Carbon Compounds and Lab or 277, 278 Organic Chem I and Lab (4 cr)

Chem 418 Environmental Chemistry (3 cr)
Geog 385 GIS Primer (3 cr)
Geog 401 Climatology (3 cr)
GeoE 420 Erosion and Sediment Control (3 cr)
Geol 410 Techniques of Groundwater Study (3 cr)
Geol 478 Advanced Geochemistry of Natural Waters (3 cr)
MMBB 250 General Microbiology (5 cr)
Soil 205, 206 General Soils and Lab (4 cr)

**E. GEOLOGICAL EDUCATION OPTION**

Geol 212 Principles of Paleontology (4 cr)
Geol 335 Geomorphology (3 cr)
Geol 360 Geologic Hazards (3 cr)
Geol 405 Earth Sciences (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 203 General Botany (4 cr)
Geog 100 Physical Geography (4 cr)
Geog 401 Climatology (3 cr)
Math 160 Survey of Calculus or 170 Analytic Geom and Calculus I (4 cr)
Math 175 Analytic Geometry and Calculus II or Math 330 Linear Algebra or Stat 251 Principles of Statistics (3-4 cr)
Phys 103, 104 General Astronomy and Lab (4 cr)
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II (8 cr)

**F. STRUCTURAL GEOLOGY AND TECTONICS OPTION**

Students must complete 4 credits in Geol 345, Structural Geology.

Geol 335 Geomorphology (3 cr)
Geol 344 Earthquakes and Seismic Hazards (3 cr)
Geol 416 Advanced Field Methods in Geosciences (3 cr)
Geol 432 Geologic Development of North America (3 cr)
Geol 441 Structural Analysis (3 cr)
Geol 448 Tectonics or 459 Geodynamics (3 cr)
Geol 498 Senior Thesis (4 cr)
Math 170 Analytic Geometry and Calculus I (4 cr)
Math 175 Analytic Geometry and Calculus II or 330 Linear Algebra (3-4 cr)
Phys 111-112 General Physics I-II or 211-212 Engineering Physics I-II (8 cr)

## Academic Minor Requirements

### GEOLOGY MINOR

Geol 101 Physical Geology (4 cr)
Geol 102 Historical Geology (4 cr)
Electives in geology or geophysics (13 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Geological Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. All graduate students in this department are expected to attend the appropriate departmental seminar each semester.

**Master of Science.** General M.S. requirements apply. Majors offered under the M.S. degree are geology, geophysics, and hydrology. Prerequisites are the equivalent of an undergraduate major in the area of specialization. A written thesis is required for which ten credits (of the minimum of 30 credits for the degree) are permitted. A nonthesis option is available under special conditions in hydrology.

**Master of Arts in Teaching--Major in Earth Science.** General M.A.T. requirements apply. A plan of study will be arranged in conference with the student's major professor and co-advisor upon admission to the program.

**Doctor of Philosophy.** General Ph.D. requirements apply. Admission to the doctoral program is based on the compatibility of the student's research interests with those of the major professor, upon the availability of research support, and the student's academic record and potential. Applicants are expected to have the prerequisites as specified for the M.S. degree with a major in geology. Each research program is developed by the student and the major professor with the advisory committee's approval. Up to 45 credits, are permitted in research and dissertation.

# Division of Health, Physical Education, Recreation and Dance

**Calvin W. Lathen, Div. Director and Coordinator of Recreation (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).** ***Faculty:*** **Kathy D. Browder, Damon D. Burton, Jess D. Caudillo, Carol Conkell, Dennis Dolny (Coordinator, Sport Science), Elizabeth Escamilla, Gregory J. Halloran, Grace Goc Karp (Coordinator, Physical Education), Glenn Kastrinos, Michael L. Kinziger, Calvin W. Lathen (Coordinator, Recreation), Randy M. Page (Coordinator, Health and Safety), Patricia L. Richards, Sharon K. Stoll (Coordinator, Graduate Program), Diane B. Walker (Coordinator, Dance), Jackie M. Williams (Coordinator, Athletic Training), Marianne Woods (Coordinator, Basic Instruction Program).**

The Division of Health, Physical Education, Recreation and Dance is one of three divisions in the College of Education. The college offers a Ph.D. in education with tracks in sport pedagogy, physical education, or other program areas in the division; the division offers master's degrees in recreation and physical education; baccalaureate degrees in dance, physical education, school and community health, recreation, athletic training, and sport science; several minors and options; and basic instruction in numerous recreational and sport activity areas.

The activity portion of the program is supported by outstanding facilities, which include three gymnasia, two dance studios, two pools, eight indoor tennis courts, nine racquetball courts, indoor and outdoor tracks, weight rooms, fitness trail, climbing wall and rope course, and expansive field and play areas. In addition, activity classes are taught in the Student Recreation Center.

The baccalaureate degree in dance is designed to give the student professional training in teaching, performing, choreography, and concert production. The Festival Dance and Performing Arts Association maintains a residency program with the division.

The baccalaureate degree in physical education leads to K-12 teaching certification and provides a foundation for athletic coaching. Physical education is concerned primarily with the art and science of human movement, principles and concepts relating to skill acquisition and analysis, the effects of exercise on the body, concepts relating to total fitness, and the teaching and learning process.

The baccalaureate degree in recreation prepares the student for recreation leadership roles in municipalities, agencies, institutions, and private industry. Students enrolled in this program complete a recreation internship. Recreation students may specialize by completing a university-approved academic minor or an approved cognate specialization.

The baccalaureate degree in school and community health education provides a foundation for health education and community health employment. Health education is concerned with providing individuals with learning experiences designed to predispose, enable, and reinforce voluntary adaptations of behavior conducive to well-being. In addition to school health education, this degree emphasizes community health and may lead to employment possibilities within hospitals, health departments, governmental agencies, volunteer agencies, and business/industry.

The baccalaureate degree in sport science prepares students to work in the general areas of sport, and corporate, clinical, or private wellness programming. It is for students interested in professional opportunities that do not require teacher certification. An internship at a corporate, clinical, or sport facility is included.

The baccalaureate degree in athletic training prepares students for the athletic training profession. To become a certified athletic trainer, at the completion of the degree program the student must pass the National Athletic Trainers Association Board of Certification exam. Students in this degree program obtain experience by working as student athletic trainers.

Academic and teaching minors offered by the division include: health education, dance, recreation, recreational therapy, outdoor recreation leadership, tourism and leisure enterprises, physical education, sport science, coaching, athletic training, and sport ethics.

Graduate work includes master's degrees in physical education and recreation and a doctorate in education with specialization tracks in the HPERD areas. Majors seeking a master's degree in physical education may concentrate in one of five areas of specialization: sport pedagogy, dance pedagogy, sport science, health and wellness, or sport psychology. The master's degree in recreation is limited to sport and recreation management. Ph.D. study is available in selected HPERD program areas.

A 2.8 undergraduate grade-point average is required for admission. Doctoral admission requirements include the GRE and can be obtained from the College of Education.

## Courses

See part 6 for courses in Dance (Dan), Health and Safety (H&S), Physical Education (PE), and Recreation (Rec).

## Undergraduate Curricular Requirements

### ATHLETIC TRAINING (B.S.P.E.)

This curriculum is for students who desire to become Certified Athletic Trainers. Certified Athletic Trainers work with professional, college/university, high school athletic teams, sports medicine clinics, hospitals, with nonprofit organizations such as YMCA's, private clubs, rehabilitation facilities, and with sport organizations and agencies. After the completion of this degree program, students must pass the National Athletic Trainers' Association Board of Certification examination to become a certified athletic trainer.

Required course work includes the university requirements (see regulation J-3), 20 credits of other requirements in the Division of Health, Physical Education, Recreation and Dance that support the athletic training major (see the division director for necessary courses in the university requirements and other division requirements), and the following course work:

FCS 305 Nutrition Related to Fitness and Sport (3 cr)
H&S 150 Wellness Lifestyles (3 cr)
H&S 245 Introduction to Athletic Injuries (3 cr)
H&S 288 First Aid: Emergency Response (2 cr)
H&S 289 Drugs in Society (2 cr)
H&S 350 Stress Management and Mental Health (2 cr)
H&S 436 Health Promotion Program Planning (3 cr)
H&S 466 Athletic Training Evaluation (3 cr)
H&S 467 Athletic Training Rehabilitation (3 cr)
H&S 468 Athletic Training Modalities (3 cr)
H&S 469 Athletic Training Organization and Administration (3 cr)
PEB 105 Dance: Step or Floor Group Fitness (1 cr)
PEB 106 Individual and Dual Sports: Weight Training (1 cr)
PE activity/skill classes (see division director for selection) (2 cr)
PEP 101 Introduction to Athletic Training (1 cr)
PEP 201 Fitness Activities and Concepts (2 cr)
PEP 220 Coaching Youth Sports (1 cr)
PEP 300 Applied Human Anatomy and Biomechanics (2 cr)
PEP 305 Applied Sports Psychology (3 cr)
PEP 360 Motor Development and Control (3 cr)
PEP 380 Measurement and Evaluation (2 cr)
PEP 418 Physiology of Exercise (3 cr)
PEP 475 Moral Reasoning in Sport (2 cr)
PEP 493 Fitness Assessment and Prescription (3 cr)
PEP 495 Practicum in Tutoring (2 cr)
PEP 498 Internship in Physical Ed (Clinical I-V 1 cr each; Clinical VI-VII 2 cr each) (9 cr)
Rec 110 Recreation for People with Disabilities or Rec 330 Recreational Therapy Programming for People with Disabilities or PEP 424 Physical Education for Special Populations (2-3 cr)
Rec 431 Medical Terminology (2 cr)
Rec 445 Professional Seminar (1 cr)
Electives to total 128 cr for the degree

## DANCE (B.S.Dan.)

The curriculum leading to the degree of Bachelor of Science in Dance is designed to give the student professional training in teaching, performing, choreography, and concert production.

Required course work includes the university requirements (see regulation J-3) and the following course work:

Dan 101 First Year/Transfer Student Orientation (1 cr)
Dan 216/416 Technique (must include a minimum of 6 semesters each of ballet, modern, and jazz and 8 credits of 416) (24-32 cr)
Dan 112 Recreational Dance Forms (2 cr)
Dan 210 Dance Theatre (4 semesters) (8 cr)
Dan 320 Labanotation (3 cr)
Dan 321 Dance Pedagogy (3 cr)
Dan 325 Dance Production (3 cr)
Dan 360 Children's Dance (2 cr)
Dan 383 Dance Composition (6 semesters) (6 cr)
Dan 410 Pre-professional Dance Theatre (4 semesters) (8 cr)
Dan 412 Dance Theatre Choreography (2 semesters) (2 cr)
Dan 420 Dance Accompaniment (3 cr)
Dan 421 Dance History (3 cr)
Dan 490 Senior Project (3 cr)
MusH 101 Survey of Music (3 cr)
PEP 300 Applied Human Anatomy and Biomechanics (2 cr)
PEP 360 Motor Development and Control (3 cr)
PEP 418 Physiology of Exercise (3 cr)
TheA 105 Basics of Performance (3 cr)
TheA 205 Lighting Design I (3 cr)
TheA 320 Theatre Management (2 cr)
Two of the following courses (2 cr):

MusA 114 Individual Instruction (voice or piano)
MusA 145-146 Piano Class
MusA 147-148 Voice Class
MusA 149-150 Voice for Actors
Electives to total 128 cr for the degree

Dance majors planning to qualify for the Idaho Secondary Teaching Certificate must include Idaho Technology Competency Certification and the following courses among the electives to complete the 128 credits for the degree:

Dan 433 Practicum: Dance Teaching (14 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology (3 cr)

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section in Part 4.

## PHYSICAL EDUCATION (B.S.Ed.)

The major in physical education leads to certification in grades 1-12.

Requirements include the university requirements (see regulation J-3), Idaho Technology Competency Certification and the following courses:

**MOVEMENT COURSES** (all to be completed prior to pedagogy course sequence)
PEB 108 Swimming (1 cr)
PEP 107 Movement Fundamentals (1 cr)
PEP 201 Fitness Activities and Concepts (2 cr)
PEP 202 Skill and Analysis: Stunts and Tumbling (1 cr)
Dan 112 Recreational Dance Forms (2 cr)

**INDIVIDUAL SKILL COURSES** (All to be completed prior to or concurrent with Pedagogy course sequence)
PEP 132 Skill and Analysis of Tennis, Pickleball, and Badminton (1 cr)
PEP 133 Skill and Analysis of Golf and Archery (1 cr)
PEP 134 Skill and Analysis of Track and Field (1 cr)

**TEAM SKILL COURSES** (All to be completed prior to or concurrent with Pedagogy course sequence)
PEP 135 Skill and Analysis of Basketball and Volleyball (1 cr)
PEP 136 Skill and Analysis of Soccer and Speedball (1 cr)
PEP 137 Skill and Analysis of Softball and Field Sports (1 cr)

**OUTDOOR/RECREATIONAL SKILL COURSES** (All to be completed prior to or concurrent with Pedagogy course sequence)
PEP 138 Skill and Analysis of Outdoor Activities I (1 cr)
PEP 139 Skill and Analysis of Outdoor Activities II (1 cr)
PEP 243 Recreation Activities (2 cr)

**FOUNDATION COURSES**
PEP 161 Introduction to Physical Education (1 cr)
PEP 300 Applied Human Anatomy and Biomechanics (2 cr)
PEP 305 Applied Sport Psych or PEP 310 Cultural and Phil Aspects of Sport (2-3 cr)
PEP 360 Motor Development and Control (3 cr)
PEP 380 Measurement and Evaluation (2 cr)
PEP 418 Physiology of Exercise (3 cr)
Biol 120 Human Anatomy (4 cr)
Biol 121 Human Physiology (4 cr)
H&S 150 Wellness Lifestyles (3 cr)
H&S 288 First Aid: Emergency Response (or current Emergency Response and CPR certification at the time of graduation) (2 cr)

**PEDAGOGY COURSES**
Note: Acceptance into the physical education pedagogy sequence requires completion with no grade lower than a "C" in movement and skill courses, at least 6 of the 10 credits of required skill courses, PEP 161, 201, 300, 360, 305/310, ED 201, 301, minimum 2.75 GPA, appropriate portfolio evidence, and advisor recommendation.
PEP 412 Elementary Physical Education Methods (2 cr)
PEP 421 Secondary Physical Education Methods (2 cr)
PEP 424 Physical Education for Special Populations (2 cr)
PEP 432 Elementary Curriculum and Administration (2 cr)
PEP 433 Secondary Curriculum and Administration (2 cr)

PEP 434 Professional Physical Education Role and Development (2 cr)

**GENERAL COLLEGE OF EDUCATION REQUIREMENTS**
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
PEP 484 Internship in Physical Education Teaching (28 cr)
Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology (3 cr)

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section in Part 4.

## RECREATION (B.S.Rec.)

This curriculum is primarily for students interested in careers in leadership, supervision, or management of recreation agencies. Students graduating from this program are immediately eligible to sit for the national-level examination to become a Certified Leisure Professional and thereby acquire this valuable credential for professional advancement.

A minimum cumulative university GPA of 2.25 is required of all recreation majors who seek to take upper-division courses (numbered 300 or above) offered by the Recreation Program Unit. Recreation majors must also achieve a minimum cumulative university GPA of 2.25 to graduate with a B.S.Rec. degree.

Required course work includes the recreation major, the university requirements (see regulation J-3), division requirements (listed below), and completion of an academic minor or 20 credits in an approved cognate area of study. Note: Students should contact advisor before registering for courses to satisfy regulation J-3.

**Division Requirements:**

BLaw 265 Legal Environment of Business (3 cr)
Engl 207 Persuasive Writing or Engl 208 Personal and Exploratory Writing or Engl 209 Inquiry-Based Writing or Engl 313 Business Writing or 317 Technical Writing (3 cr)
H&S 288 First Aid: Emergency Response (2 cr)
Psyc 305 Developmental Psychology (3 cr)
Four courses (only two may be B.I.P. courses—PEB 105, 106, 107) selected from PEB 105, 106, 107, PEP 132, 133, 134, 135, 136, 201, or 202 (4-5 cr)
Aquatic course (Lifeguarding/WSI recommended) (1 cr)
Electives to total 128 cr for the degree

**Recreation Major Requirements:**

Rec 102 Introduction to Recreation Professions (1 cr)
Rec 110 Recreation for People with Disabilities or 230 Prin of Recreational Therapy (3 cr)
Rec 125 Outdoor Leisure Pursuits (2 cr)
Rec 260 Leisure and Society (3 cr)
Rec 275 Computer Applications in Leisure Services (3 cr)
Rec 280 Recreation Practicum (1 cr)
Rec 329 Leadership in Recreation (3 cr)
Rec 349 Facility Planning and Management (2 cr)
Rec 365 Leisure and the Aging Process (3 cr)
Rec 410 Trends and Issues in Leisure Services (3 cr)
Rec 425 Leisure Education (2 cr)
Rec 445 Professional Seminar (1 cr)
Rec 455 Design and Analysis of Research in HPERD (3 cr)
Rec 460 History and Philosophy of Recreation and Leisure (2 cr)
Rec 486-487 Recreation Program Planning and Marketing I-II (4 cr)
Rec 493 Management of Leisure Services (3 cr)
Rec 495 Practicum in Tutoring (1 cr)
Rec 498 Internship in Recreation (9 cr)
Additional courses selected from the following (4 cr):
- Rec 204 ST: Recreation Issues
- Rec 254 Camp Leadership
- Rec 299 Directed Study
- Rec 340 Leisure and Tourism Enterprises
- Rec 400 Seminar
- Rec 403 Workshop
- Rec 404 Special Topics
- Rec 420 Experiential Education
- Rec 499 Directed Study

## SCHOOL AND COMMUNITY HEALTH EDUCATION (B.S.Ed.)

The major in school and community health education leads to certification in grades 6-12.

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section in Part 4.

Requirements include the university requirements (see regulation J-3--contact the division for specific courses required in the core), Idaho Technology Competency Certification, an approved teaching minor, and the following courses:

H&S 150 Wellness Lifestyles (3 cr)
H&S 288 First Aid: Emergency Response (2 cr)
H&S 289 Drugs in Society (2 cr)
H&S 316 Community and Global Health Services (2 cr)
H&S 350 Stress Management and Mental Health (2 cr)
H&S 423 Health Education Methods and Administration (3 cr)
H&S 431 Practicum: Student Teaching (14 cr)
H&S 436 Health Promotion Program Planning (3 cr)
H&S 450 Consumer Health and Health Care Issues (2 cr)
Biol 120 Human Anatomy (4 cr)
Biol 121 Human Physiology (4 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
ED 401 Professional Role Development (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
PEP 418 Physiology of Exercise (3 cr)
Psyc 305 Developmental Psychology (3 cr)
Psyc 330 Human Sexuality (3 cr)
Two of the following courses (5-6 cr):
- Comm 121 Media Writing
- Comm 331 Conflict Management
- FCS 240 Intimate Relationships
- FCS 305 Nutrition Related to Fitness and Sport
- FCS 334 Middle Childhood-Adolescence
- FCS 440 Contemporary Family Relationships
- FCS 448 Consumer Economic Issues
- PEP 493 Fitness Assessment and Prescription
- PolS 451 Public Administration
- Soc 230 Social Problems
- Soc 240 Introduction to Social Services
- Soc 320 Sociology of Substance Abuse

Electives to total 128 cr for the degree

A community health (nonteaching) track exists under this major. Students who elect this track must complete all requirements listed above except the general College of Education requirements, which include student teaching and an approved teaching minor. Instead, students in this track must complete division requirements (contact the division office) and an approved academic minor or cognate area of study. Students in this track must also achieve a 2.75 or greater GPA, which is required for all College of Education B.S.Ed. degree recipients.

## SPORT SCIENCE (B.S.P.E.)

This curriculum is for students interested in professional opportunities that do not require teaching certification. Graduates will be prepared to work in the general areas of sport, corporate, clinical, or private wellness programs, or enter graduate studies.

Required course work includes the university requirements (see regulation J-3), an approved 20-credit cognate area of study, 16-17 credits of other requirements of the Division of Health, Physical Education, Recreation and Dance that support the sport science major (see the division director for necessary courses in the university requirements, cognate area of study, and other division requirements), and the following.

Note: See the division director for information on which students should select courses listed as "or."

H&S 150 Wellness Lifestyles (3 cr)
H&S 289 Drugs in Society (2 cr)
H&S 350 Stress Management and Mental Health (2 cr)
H&S 450 Consumer Health and Health Care Issues (2 cr)
PEP 100 Introduction to Sport Sciences (1 cr)
PEP 201 Fitness Activities and Concepts (2 cr)

PEP 300 Applied Human Anatomy and Biomechanics (2 cr)
PEP 305 Applied Sports Psych or 310 Cultural and Phil Aspects of Sport (2-3 cr)
PEP 360 Motor Development and Control (3 cr)
PEP 380 Measurement and Evaluation (2 cr)
PEP 418 Physiology of Exercise (3 cr)
PEP 455 Design & Analysis of Research in HPERD (3 cr)
PEP 493 Fitness Assessment and Prescription or 305/310 (not taken above) (2-3 cr)
PEP 495 Practicum in Tutoring (2 cr)
PEP 498 Internship in Physical Education (summer preferred) (9 cr)
Rec 330 Recreational Therapy Programming for People with Disabilities or 110 Recreation for People with Disabilities (3 cr)
Rec 445 Professional Seminar (1 cr)
PE activity/skill classes (see division director for selection) (5 cr)
Electives to total 128 cr for the degree

Sport science cognate options are available in the following areas: athletic training, business, fitness/wellness, pre-physical therapy, research, and sport psychology. Consult the director of the Division of Health, Physical Education, Recreation, and Dance for specific course requirements.

## Academic Minor Requirements

### ATHLETIC TRAINING MINOR

Note: This minor does not prepare students to be certified athletic trainers. Individuals interested in certification should see the athletic training major section of the General Catalog. Only students enrolled in the athletic training major (approved NATA students) may enroll in H&S 465, 466, 467, 468, and 469.

H&S 245 Introduction to Athletic Injuries (3 cr)
H&S 289 Drugs in Society (2 cr)
H&S 349 Advanced Athletic Injuries (3 cr)
H&S 495 Practicum in Tutoring (2 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 305 Nutrition Related to Fitness and Sport (3 cr)
PEP 300 Applied Human Anatomy and Biomechanics (2 cr)
PEP 360 Motor Development and Control
PEP 418 Physiology of Exercise (3 cr)
Rec 431 Medical Terminology (2 cr)

### COACHING MINOR

Note: H&S 245, PEP 300, and PEP 418 have prerequisite requirements.

FCS 305 Nutrition Related to Fitness and Sport (3 cr)
H&S 245 Introduction to Athletic Injuries (3 cr)
H&S 289 Drugs in Society (2 cr)
H&S 349 Advanced Athletic Injuries (3 cr)
PEP 204 Special Topics: Coaching (4 cr)
PEP 220 Coaching Youth Sports (1 cr)
PEP 300 Applied Human Anatomy and Biomechanics or 418 Physiology of Exercise (2-3 cr)
PEP 305 Applied Sports Psych or 310 Cultural and Phil Aspects of Sport (2-3 cr)
PEP 495 Practicum in Tutoring (1 cr)
PEP 497 Athletic Program Management or 440 Phys Ed and Sport Management (3 cr)

### DANCE MINOR

Dan 320 Labanotation (3 cr)
Dan 325 Dance Production (3 cr)
Dan 383 Dance Composition (2 cr)
Dan 420 Dance Accompaniment (3 cr)
Dan 421 Dance History (3 cr)
Electives in theatrical dance tech (selected from ballet, jazz, modern) (7 cr)

### DANCE PERFORMANCE MINOR

Dance 100 Dance in Society (3 cr)
Dance 210 Dance Theatre (2 times) (4 cr)
Dance 383 Dance Composition (2 times) (2 cr)
Electives chosen from the following (11 cr):
Dance 105 Dance: Musical Theater (1 cr)

Dance 105 Dance: Tap (1 cr)
Dance 105 Dance: Repertory (1 cr)
Dance 112 Recreational Dance Forms (2 cr)
Dance 216 Techniques: Ballet I/II (1 cr)
Dance 216 Techniques: Ballet III/IV (1 cr)
Dance 216 Techniques: Ballet V/VI (1 cr)
Dance 216 Techniques: Jazz I/II (1 cr)
Dance 216 Techniques: Jazz III/IV (1 cr)
Dance 216 Techniques: Modern I/II (1 cr)
Dance 216 Techniques: Modern III/IV (1 cr)
Dance 416 Adv Tech: Pre-Professional Ballet (1 cr)
Dance 416 Adv Tech: Pre-Professional Jazz (1 cr)
Dance 416 Adv Tech: Pre-Professional Modern (1 cr

## OUTDOOR RECREATION LEADERSHIP MINOR

Required course:
Rec 320 Outdoor Recreation Leadership (2 cr)
Courses selected from the following (12 cr):
H&S 288 First Aid: Emergency Response (2 cr)
Rec 125 Outdoor Leisure Pursuits (2 cr)
Rec 215 River Reading and Whitewater Safety (1 cr)
Rec 254 Camp Leadership (3 cr)
Rec 321 Wilderness Medicine and Evacuation (1 cr)
Rec 420 Experiential Education (2 cr)
Rec 495 Practicum in Tutoring (1 cr)
RRT 287 Professional Foundations in RRT (3 cr)
RRT 387 Environmental/Cultural Interpretation (3 cr)
RRT 401 Practicum in Tutoring (1 cr)
RRT 487 Field Environmental Education (3 cr)
RRT 490 Wilderness Management (3 cr)
RRT 491 Wilderness Leadership for Personal Growth (3 cr)
Courses selected from the following (5 cr):
PEB 106 Individual/Dual Sports: Fly Fishing (1 cr)
PEB 108 Swimming: Scuba (1 cr)
Rec 204 Special Topics course approved by advisor
Rec 220 Rock Climbing (1 cr)
Rec 221 Mountaineering (2 cr)
Rec 222 Cross Country Skiing (1 cr)
Rec 223 Winter Skills (2 cr)
Rec 224 Whitewater Rafting (1 cr)
Rec 225 Kayaking (1 cr)
Rec 226 Whitewater Canoeing (1 cr)
Rec 227 Mountain Biking (2 cr)
Rec 255 Backpacking and Camping Skills (2 cr)
RRT 204 Special Topics course approved by advisor
Technical competency (contact department; practical exam administered by Rec and/or RRT faculty) (max 4 cr)

## RECREATION MINOR

Rec 102 Introduction to Recreation Professions (1 cr)
Rec 260 Leisure and Society (3 cr)
Rec 280 Recreation Practicum (1 cr)
Rec 329 Leadership in Recreation (3 cr)
Rec 460 History and Philosophy of Recreation and Leisure (2 cr)
Rec 486 Recreation Program Planning and Marketing I (2 cr)
Rec 493 Management of Leisure Services (3 cr)
Recreation electives (4 cr)

## RECREATIONAL THERAPY MINOR

Note: Zool 120 and 121 are required for Recreational Therapy certification.

Psyc 311 Abnormal Psychology (3 cr)
Rec 230 Principles of Recreational Therapy (3 cr)
Rec 280 Recreation Practicum (1 cr)
Rec 330 Recreational Therapy Programming for People with Disabilities (3 cr)
Rec 341 Assessment and Evaluation in Recreational Therapy (2 cr)
Rec 342 Recreational Therapy in Psychiatric Settings (3 cr)

Rec 431 Medical Terminology (2 cr)
Rec 435 Clinical Aspects of Recreational Therapy (3 cr)
Rec 467 Recreational Therapy for People with Developmental Disabilities (3 cr)
Rec 495 Practicum in Tutoring (1 cr)

### SPORT ETHICS MINOR

PEP J275/J475 Moral Reasoning in Sport (2 cr)
PEP 310 Cultural and Philosophical Aspects of Sport (2 cr)
PEP 460 Competition and Social Values (3 cr)
PEP 470 Sport and Athletic Business Ethics (3 cr)
PEP 480 Seminar in Sportsmanship: Moral Development (3 cr)
PEP 499 Directed Study (1 cr)
Phil 103 Ethics (3 cr)
Phil 433 Ethical Theory (3 cr)

### SPORT SCIENCE MINOR

Note: H&S 245 and PEP 418 have prerequisite requirements.

H&S 150 Wellness Lifestyles (3 cr)
H&S 245 Introduction to Athletic Injuries or 288 First Aid: Emergency Response (2-3 cr)
H&S 350 Stress Management and Mental Health (2 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 305 Nutrition Related to Fitness and Sport (3 cr)
PEP 201 Fitness Activities and Concepts (2 cr)
PEP 418 Physiology of Exercise (3 cr)
PEP 495 Practicum in Tutoring (40 hrs minimum) (1 cr)
Courses selected from the following (4-6 cr):
- H&S 289 Drugs in Society (2 cr)
- H&S 436 Health and Wellness Promotion (3 cr)
- PEB 105 Dance Aerobics or Jazzercise (1 cr)
- PEB 106 Weight Training and Conditioning (1 cr)
- PEB 108 Aqua Fitness or Water Aerobics (1 cr)
- PEP 305 Applied Sports Psychology (3 cr)
- PEP 310 Cultural and Philosophical Aspects of Sport (2 cr)
- PEP 493 Fitness Assessment and Prescription (3 cr)

### TOURISM AND LEISURE ENTERPRISES MINOR

Note: This academic minor is offered through both the College of Education and the College of Natural Resources.

Bus 321 Marketing (3 cr)
Rec/RRT 181 Introduction to Hospitality Services Industries (3 cr)
Rec 340 Leisure and Tourism Enterprises (3 cr)
Rec 382/RRT 381 Hospitality Management and Organization (3 cr)
RRT 494 Natural Resources Communication (3 cr)
One course selected from the following (2-3 cr):
- Rec 204/Rec 280 Special Topics/Practicum
- Rec 235/RRT 236 Principles of Tourism
- Rec 486 Recreation Program Planning and Marketing I
- RRT 386 Resource Recreation and Tourism Planning
- RRT 398 Internship

## Graduate Degree Programs

The Graduate Record Examination is not required for admission to the master's program. However, candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Health, Physical Education, Recreation and Dance. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** The general M.S. requirements apply. Candidates are expected to have the equivalent of a major or minor in the area of concentration. The M.S. program emphasizes research, and the student presents either a written thesis, a bound professional paper, and/or a comprehensive examination or approved project. The thesis is approved and supervised by a major professor and supervisory committee.

**Master of Education.** Candidates for this degree are expected to have the equivalent of a major or minor and/or to have completed the professional requirements for standard teacher certification. Any credits required for certification or to complete deficiencies will not be counted toward the degree. Of the minimum of thirty credits required, nine credits must be in approved education courses. The terminal project for the M.Ed. degree is a comprehensive examination or equivalent project.

**Doctor of Philosophy.** The Ph.D. program is offered in education with a concentration in physical education-sport pedagogy or HPERD. Persons interested in doctoral study should apply to the College of Education. Admission requirements include: (a) a minimum grade-point average of 3.00 during the last two years of undergraduate preparation, (b) a minimum grade-point average of 3.50 at the master's degree level or its equivalent, and (c) a composite Graduate Record Examination score of 1050. Exceptions to the criteria may be made when documented by the Graduate Review Committee.

Sport pedagogy is designed for persons interested in the analysis of the theoretical and applied dimensions of the teaching and learning process in physical education. HPERD is designed for persons interested in the broad area of programs offered by the division. HPERD doctoral programs can be suited to the needs of the student within the context of the UI graduate program. Emphasis is available in exercise physiology, sport psychology, sport ethics and philosophy, health, wellness, plus other options.

# Department of History

**Katherine G. Aiken, Dept. Chair (315 Admin. Bldg. 83844-3175; phone 208/885-6253).** ***Faculty:*** **Katherine G. Aiken, Dale T. Graden, Ellen E. Kittell, Sean M. Quinlan, Carlos A. Schwantes, Richard B. Spence, Pingchao Zhu.** ***Adjunct Faculty:*** **Rand C. Lewis, Bill L. Smith.** ***Affiliate Faculty:*** **William R. Swagerty.**

History is not the memorization of names and dates; it is the study of human experience in all aspects. An understanding of the past is essential to interpreting the present and envisioning the future. History is by nature interdisciplinary and multi-cultural. Each course trains the student to think, to evaluate problems, and to reach logical conclusions. Special attention is given to the development of analytical and writing skills through essay examinations and research projects.

A degree in history provides excellent preparation for careers in international business, government/military service, law, education, library science, communications/media, and tourism/recreation.

The Department of History offers courses of study leading to the B.A. or the B.S. degree and has a staff of eight full-time professors who hold the Ph.D. degree. Currently there are 150 undergraduate history majors. Double majors can be arranged easily.

History faculty members also advise and participate in courses for majors in American studies, international studies, interdisciplinary studies, and Latin American studies and for minors in religious studies and women's studies.

Graduate study is offered in American, English, European (medieval through modern), and Latin American history. The degree programs include Master of Arts, Master of Arts in Teaching, and Doctor of Philosophy, for which dissertation topics are limited to the fields of the North American West, U.S. since 1877, and Europe since 1750.

Students applying for admission to graduate study in history must be approved by the majority of the history faculty. Students seeking graduate degrees in history must present recent GRE scores, an undergraduate transcript with at least a 3.00 average in all history courses and a 2.80 overall average that shows at least 12 credits earned in a foreign language. The language requirement is waived for those seeking the M.A.T.

## Courses

See part 6 for courses in History (Hist).

## Undergraduate Curricular Requirements

### HISTORY (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Lower-division courses selected from the following (9 cr):
- Hist 101-102 History of Civilization
- Hist 111-112 Introduction to U.S. History
- Hist 180 Introduction to East Asian History
- Hist 210 Introduction to Modern Latin American History

Hist 290 The Historian's Craft (3 cr)
Upper-division history courses, including a seminar in senior year (27 cr)
Related fields (20 cr)

### HISTORY (B.S.)

Note: Students expecting to study for an M.A. or Ph.D. degree in history should take the B.A. rather than the B.S. degree.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

Lower-division courses selected from the following (9 cr):
- Hist 101-102 History of Civilization
- Hist 111-112 Introduction to U.S. History
- Hist 180 Introduction to East Asian History
- Hist 210 Introduction to Modern Latin American History

Hist 290 The Historian's Craft (3 cr)
Upper-division history courses, including a seminar in senior year (27 cr)
Related fields (20 cr)
Any combination of the following (12 cr):

Any foreign language (high-school foreign language may be substituted at the rate of 4 cr per year)
Engl 257-258 Literature of Western Civilization
FLEN 313 Modern French Literature in Translation
FLEN 315 French Cinema
FLEN 323-324 German Literature in Translation
FLEN 363-364 Literature of Ancient Greece and Rome
FLEN 391 Hispanic Film
FLEN 392 Contemporary European Fiction Film
FLEN 393 Spanish Literature in Translation
FLEN 394 Latin American Literature in Translation
FLEN 395 Culture and Institutions of Latin America

## Academic Minor Requirements

### HISTORY MINOR

History courses chosen from the following* (9 cr):
Hist 101-102 History of Civilization
Hist 111-112 Introduction to U.S. History
Hist 180 Introduction to East Asian History
Hist 210 Introduction to Modern Latin American History
History courses at the 300- or 400-level (at least 3 cr in U.S., Latin American, or African history and at least 3 cr in Ancient, European, or Asian history) (9 cr)
History elective (3 cr)

*For demonstrable cause, department chair or minor advisor may allow substitution of courses numbered above 100-level.

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of History. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. Detailed information about requirements and procedures related to these programs is available in printed form from the head of the department.

**Master of Arts.** General M.A. requirements apply. This thesis degree is offered in all fields of history for which competent staff is currently available. The work toward an M.A. degree stresses preparation for research as well as a balanced course program.

**Master of Arts in Teaching--Major in History.** General M.A.T. requirements apply. In addition, of the 30 credits required, nine must be in history and six in professional education courses (numbered above 500).

**Doctor of Philosophy.** The Ph.D. program is primarily oriented to research and writing to prepare the candidate for entry in a career in higher education. Among the requirements for the degree are the successful passage of comprehensive examinations covering three general and one specialized field of history, the demonstration of a reading knowledge of one foreign language (normally French, German, Spanish, Russian, or Italian), and the completion of a dissertation showing original research. Dissertation topics are limited to the fields of United States since 1877, North American West (U.S., Canada, and Mexico), and Modern Europe (1750-present).

# Program in Interdisciplinary Studies

**Kurt O. Olsson, Coordinator, Undergraduate Courses (112 Admin. Bldg. 83844-3154; phone 208/885-6426). Roger P. Wallins, Coordinator, Graduate Courses (112 Morrill Hall 83844-3017; phone 208/885-6243).**

## Courses

See part 6 for courses in Interdisciplinary Studies (Intr).

## Undergraduate Curricular Requirements

### INTERDISCIPLINARY STUDIES (B.A. or B.S.)

A student may present a curriculum not included among the ones listed elsewhere in this catalog provided the program is focused toward meeting the student's particular educational goal by combining the offerings of two or more major departments. The program normally is developed and presented during the sophomore year. It must be presented before the end of the second semester of the junior year or at the time when at least 30 credits of the proposed program remain to be taken. It must be approved by: (a) at least one faculty member from each of the participating departments of the university, one of which must be in L&S, (b) the chair of one of the L&S departments involved, and (c) the L&S Committee on Interdisciplinary Studies. University requirements (see regulation J-3) and L&S requirements for either the B.A. or B.S. degree apply. This program requires a minimum of 128 credits, of which at least 50 credits must be in courses numbered 200 or above, including a minimum of 36 credits in courses numbered 300 or above. It is recommended, however, that majors in interdisciplinary studies complete at least 50 credits in upper-division courses.

Interested students should consult the L&S dean's office for referral to the Interdisciplinary Studies Committee for further information about this program.

## Interdisciplinary Academic Minors

A student may present a minor curriculum not included among the ones listed elsewhere in this catalog. The program must include at least 24 credits and be approved by: (a) at least one faculty member from each of the participating departments of the university, (b) the chair of one of the departments involved, and (c) in the case of minors that involve a department in the College of Letters and Science, the L&S Committee on Interdisciplinary Studies.

## Graduate Degree Program

An undergraduate cumulative grade-point average of 3.00 or higher and a typed statement specifically describing the student's interdisciplinary proposal (including the reasons for undertaking such a program) are required for consideration for admission to the interdisciplinary studies program.

The objective of the interdisciplinary studies degree is to provide students with the opportunity to design specific programs of study of an interdisciplinary nature when the student's needs or desires do not fall within a currently prescribed program. Individual study plans draw from courses offered in two or more departments.

The interdisciplinary program has both a thesis option and a nonthesis option. A student choosing the thesis option may use up to six credits of Intr 500 toward the degree.

There is no typical study plan for an interdisciplinary studies degree program. Each student seeking such a degree must, with the counsel of a major professor, develop a study plan and identify a program committee, subject to the following constraints: the program committee must have at least four members; the program committee must have at least one member from each of the principal departments or disciplines involved in the student's program and one member appointed by the vice president for research and graduate studies; at least one-half of the program committee must be members of the Graduate Faculty.

The proposed program and study plan must be unanimously approved by the student's program committee and the vice president for research and graduate studies.

The program generally is administered by the department of which the student's major professor is a member. For both the thesis and nonthesis options, there must be a comprehensive examination that evaluates the student's ability to integrate all disciplines included in the program and to respond logically to related questions of a general nature. The general university credit requirements for the M.A. and M.S. degrees apply to the interdisciplinary studies degree as well; see the College of Graduate Studies section of part 4 for the requirements applicable to all M.A. and M.S. degrees.

Procedural details for developing, receiving approval for, and carrying out an interdisciplinary degree program are available from the Graduate College.

# Martin School of International Affairs

**Rand C. Lewis, Director (1 Cont. Ed. Bldg. 83844-3229; phone 208/885-6527).** ***Faculty:*** This is an interdisciplinary program, faculty are provided by supporting departments from across campus.

## Courses

See Part 6 for courses in International Studies (IS) and in the Martin Institute (Mrtn).

## Undergraduate Curricular Requirements

### INTERNATIONAL STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Courses to include the following (no more than 15 cr at the lower-div level and no more than 12 cr from any single discipline) (48 cr)
- Anth 220 Peoples of the World
- Econ 201-202 Principles of Economics
- Econ 446 International Econ or 447 Econ of Developing Countries
- Geog 200 World Regional Geography
- Hist 290 The Historian's Craft or PolS 235 Political Research Methods and Approaches
- IS 400 Seminar: International Issues
- PolS 237 International Politics
- Stat 150 Intro to Statistics or 251 Principles of Statistics
- At least 9 cr from one of the following issue emphases: international relations, international economics and business, global resources and development (see courses below)
- At least 12 cr from one of the following regional emphases: Latin America, Europe, Asia (see courses below)

Demonstrated proficiency in a modern foreign language correlating with the region of emphasis and equivalent to that gained from six semesters of university study (0-22 cr)

In addition, international experience in the student's region of emphasis is required for all students in this major. The experience must extend consecutively for at least 10-12 weeks, be qualified for at least 12 credits, and include an academic project or assignment and immersion in the culture of the country. All costs associated with the international experience are the responsibility of the student.

The requirement of international experience will normally be fulfilled by completing a registered credit program such as study abroad, student exchange, student teaching, or internship. In general, credits are registered on the UI campus; course work and field experience are taken abroad.

In some cases, permission may be granted to complete noncredit work experience that places the student abroad for a contracted length of time. Normally this work assignment will be completed during the degree program. In some instances, prior work experience may be accepted based on the following criteria: verification, length, nature, recentness, and relevancy of experience.

#### ISSUE EMPHASES IN INTERNATIONAL STUDIES

Recommended courses for completion of requirement (special topic courses may be used when approved by the director).

**A. International Relations**
- Geog 365 Political Geography (3 cr)
- Hist 429-430 U.S. Diplomatic History (3 cr each)
- Hist 458 Military History (3 cr)
- IS 400 Sem: Model United Nations (2 cr)
- Phil 436 Philosophy of War and Peace (3 cr)
- PolS 237 International Politics (3 cr) (reqd for major)
- PolS 382 Post-Communist Politics (3 cr)
- PolS 438 Conduct of American Foreign Policy (3 cr)
- PolS 440 International Organizations and International Law (3 cr)
- PolS 449 World Politics and War (3 cr)
- PolS 487 Political Violence and Revolution (3 cr)

**B. International Economics and Business**
- AgEc 332 Economics of Agricultural Development (3 cr)
- Bus 380 International Business (3 cr)
- Bus 481 International Finance (3 cr)
- Bus 482 International Marketing (3 cr)
- Econ 390 Comparative Economic Systems (3 cr)
- Econ 446 International Economics (3 cr)

Econ 447 Economics of Developing Countries (3 cr)

**C. Global Resources and Development**

AgEc 332 Economics of Agricultural Development (3 cr)
Anth 462 Human Issues in International Development (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
For 420 Tropical Dendrology/Ecology (3 cr)
For 495 International Wildland Management (1-3 cr, max 3)
Geog 350 Geography of Development (3 cr)
Geog 360 Population Dynamics and Distribution (3 cr)
PolS 480 Politics of Development (3 cr)
Rnge 358 Natural Resources of the World (3 cr)
Rnge 458 Agroforestry (3 cr)
RRT 493 International Land Preservation and Conservation Systems (3 cr)

**REGIONAL EMPHASES IN INTERNATIONAL STUDIES**

**A. Latin America**

FLEN 391/Span 307 Hispanic Film (3 cr)
FLEN 394 Latin American Literature in Translation (3 cr)
Hist 435 Latin America: The Colonial Era (3 cr)
Hist 438 Modern Mexico (3 cr)
Hist 439 Modern Latin America (3 cr)
Hist 440 Social Revolution in Latin America (3 cr)
LAS 410 Human Rights in Latin America (3 cr)
PolS 482 Latin American Politics (3 cr)
Span 306 Culture and Institutions of Latin America (3 cr)

**B. Europe**

Engl 342 Survey of British Literature (3 cr)
FLEN 313 Modern French Literature in Translation (3 cr)
FLEN 323-324 German Literature in Translation (3 cr each)
FLEN 393 Spanish Literature in Translation (3 cr)
Fren 304 Connecting French Language and Culture (4 cr)
Fren 305 Reading French Texts (3 cr)
Fren 407 Topics in French Literature (3 cr)
Fren 408 Topics in French Culture and Institutions (3 cr)
Fren 416 French Business (3 cr)
Germ 325-326 German Culture and Institutions (3 cr each)
Germ 327-328 Survey of German Literature (3 cr)
Germ 420 Readings in German Literature (3 cr)
Hist 447 The Age of the Renaissance and the Reformation (3 cr)
Hist 451 Age of the French Revolution (3 cr)
Hist 452 19th Century Europe (3 cr)
Hist 455 20th Century Europe (3 cr)
Hist 466 Eastern Europe Since 1774 (3 cr)
Hist 467 Russia to 1894 (3 cr)
Hist 468 Russia and Soviet Union Since 1894 (3 cr)
Hist 469 Modern France (3 cr)
Hist 470 Modern Germany, 1815-present (3 cr)
PolS 381 Western European Politics (3 cr)
Span 305 Culture and Institutions of Spain or 306 Culture and Institutions of Latin America (3 cr)
Span 401 Readings: Spanish Literature (3 cr)
Span 402 Readings: Spanish American Literature (3 cr)

**C. Asia**

Anth 426 Anthropology of China (3 cr)
Hist 457 History of the Middle East (3 cr)
Hist 482 Japan, 1600 to Present (3 cr)
Hist 483 Traditional Chinese Civilization (3 cr)
Hist 484 Modern China, 1840s to Present (3 cr)
Phil 306 Hindu Thought (3 cr)
Phil 307 Buddhism (3 cr)
Phil 308 Confucianism and Taoism (3 cr)
PolS 383 Middle Eastern Politics (3 cr)
PolS 484 Politics of India and the Subcontinent (3 cr)
PolS 485 African Politics (3 cr)

Other courses with an international component may be used as electives with permission of the school director.

# Academic Minor Requirements

## INTERNATIONAL STUDIES MINOR

In consultation with the school director, students electing this academic minor submit an individual study plan emphasizing (a) international relations, (b) international economics and business, or (c) global resources and development.

1. **Basic Credit Requirements.** At least 21 credits selected from the list of courses approved by the Martin School of International Affairs, consisting of the following:

- a minimum of 6 credits chosen from Anth 220, Econ 446, Econ 447, Geog 200, IS 400 (Int'l Policy Formulation) , PolS 237
- a minimum of 6 credits from one of the following issue emphases: international relations, international economics and business, global resources and development (see courses above)
- a minimum of 6 credits from one of the following regional emphases: Latin America, Europe, Asia (see courses above)

2. **Limitations.** Of the minimum of 21 credits required, (a) not more than six may be at the lower-division level, (b) no more than nine may be in any single discipline, and (c) no more than six may be in the student's major field. No course to be counted toward the minor may be taken by directed study without prior approval by the ISC.

3. **Language Proficiency.** Demonstrated proficiency (equivalent to that required for the B.A. degree) in a modern foreign language. Students who cannot demonstrate proficiency must complete at least four credits in a modern foreign language, but these credits do not count toward the basic 18-credit requirement.

# Department of Landscape Architecture

**Stephen R. Drown, Dept. Chair (207 Art and Architecture 83844-2481; phone 208/885-7448; larch@uidaho.edu; http://www.uidaho.edu/larch).** ***Faculty:*** **Gary Austin, Stephen R. Drown, James J. Kuska, Toru Otawa.** ***Adjunct Faculty:*** **Elizabeth J. Fox.** ***Affiliate Faculty:*** **Donald H. Brigham.**

Landscape architecture is an environmental design and planning profession. It is the art and science of integrating human activities with the natural and urban environment. The profession's objective is to minimize the impact of humans on the natural processes while providing for their physical and psychological needs through design.

As a profession, landscape architecture encompasses certain design skills that enable it to resolve conflicts that arise in the complex interrelationships of physical, economic, political, and social activities of people and their use of the environment. This requires an understanding of the natural systems and visual pattern of the land, necessitating courses in the natural sciences, such as biology, geology, and soils. In order to understand the nature of the physical, psychological, and social characteristics of mankind, studies in the behavioral and social sciences are extremely important in adapting development to the land. Technical knowledge about site modification is gained through courses in civil engineering and site engineering (landscape construction). This knowledge is balanced with studies in the visual arts to address the needs of people for an aesthetic environment.

The landscape architect's unique expertise lies in the development of a systematic and analytical approach to solving land-use problems. The foundation of the Landscape Architecture Department has been a strong emphasis on this "design process" as a methodology for solving various planning and design problems. The types of projects encountered within the program simulate those in professional practice: residential developments; resource planning; environmental impact assessment; community and historic preservation planning; industrial, institutional, and commercial planning; transportation and utility planning; landscape restoration and reclamation; aesthetic and visual resource management; river and shoreline planning; parks and recreation planning; site energy planning; and computer aided land planning.

The faculty members and students in the program have access to powerful geographic information systems, visual simulation and CADD computer programs, and an interactive video system that makes this one of the leading departments in landscape architecture in terms of computing capabilities. The faculty members have agreed to use the computer in some way in each landscape architecture course they teach, assuring that students will be computer literate upon graduation.

Landscape architecture students are required to take part in two major field trips at their own expense as partial fulfillment of the program requirements. In addition, one-day or overnight trips are a common occurrence as part of individual classes.

The Department of Landscape Architecture is housed with the interrelated professions of art, architecture, and interior architecture in the College of Art and Architecture. The department offers a professional four-year program leading to the degree of Bachelor of Landscape Architecture. The department's program is fully accredited by the American Society of Landscape Architects.

## Courses

See part 6 for courses in Landscape Architecture (LArc). See the section on “Fees and Expenses” in Part 2 for the architecture dedicated fee.

## Undergraduate Curricular Requirements

### LANDSCAPE ARCHITECTURE (B.L.Arch.)

Students are typically accepted into the landscape architecture major as freshman or as transfer students. However accreditation standards defining acceptable student/faculty ratios, the desire of the faculty to recruit and retain the most qualified students to the program and the availability of overall studio space, limit the number of students in the sophomore, junior and senior design studios. In order to meet these standards and constraints all freshmen must submit a portfolio of their work at the end of spring semester of their freshmen year. Transfer students must also provide a portfolio. Any visual creative activity may be submitted if the student has not taken any design courses. A committee of faculty will review this portfolio along with each student's cumulative GPA to determine their eligibility to enter the first landscape architecture design studio, LArc 259. Portfolios are due no later than the Monday of No Examination Week. All students will be notified of their eligibility for the coming fall semester no later than three weeks after the last day of classes of spring semester.

All majors in the program must maintain at least a 2.5 cumulative GPA in landscape architecture major courses. Failure to do so will require the student to meet with their advisor and repeat the landscape architecture major courses that impact this overall GPA before advancing in the program.

On registering for a course offered by the department, the student agrees that the department may retain work completed by the student for display, instruction, and accreditation purposes.

Landscape Architecture students are required to participate in two extended field trips, one in the spring of their junior year and another in the fall of their senior year.

Required course work includes the university requirements (see regulation J-3) and:

LArc 155, 156 Introduction to Landscape Architecture I-II (2 cr)
LArc 210 Computer Applications in Landscape Architecture (2 cr)
LArc 212 Irrigation Workshop (2 cr)
LArc 247 Landscape Graphics (3 cr)
LArc 259, 260 Landscape Architecture I (12 cr)
LArc 270, 371 Landscape Construction I-II (8 cr)
LArc 288, 289 Plant Materials I-II (7 cr)
LArc 358 Professional Office Practice, LA (2 cr)
LArc 359, 360 Landscape Architecture II (12 cr)
LArc 385 GIS Primer (3 cr)
LArc 389 History of Landscape Architecture (3 cr)
LArc 459, 460 Landscape Architecture III (12 cr)
LArc 480 Issues for the Emerging Landscape (3 cr)
Arch 483 Urban Theory and Issues (3 cr)
Art 100 Visual Art (3 cr)
Art 110 Visual Communication (2 cr)
Art 111 Drawing I (2 cr)
Art 121 Visual Communication and the Design Process (2 cr)
Biol 102 Biology and Society (4 cr)
Biol 314 Ecology and Population Biology or For/Rnge/WLF 221 Natural Resources Ecology (3-4 cr)
CE 218 Elementary Surveying (2 cr)
Geol 101 Physical Geology (4 cr)
Math 143 Pre-calculus Algebra and Analytic Geom (3 cr)
Soil 205 General Soils (3 cr)
Electives to total 133 cr for the degree, of which at least 6 cr must be from psychology and sociology
Recommended elective:
- Arch 284 Computer-Aided Design
- Arch 374 Computer Applications in Architecture
- Geol 335 Geomorphology
- LArc 490 Computer-Aided Regional Landscape Planning

## Academic Minor Requirements

### LANDSCAPE ARCHITECTURE MINOR

LArc 155 Introduction to Landscape Architecture I (1 cr)
LArc 389 History of Landscape Architecture (3 cr)
LArc 480 Issues for the Emerging Landscape (3 cr)
Courses chosen from the following (11 cr):
- LArc 156 Intro to Landscape Architecture II (1 cr)
- LArc 210 Computer Applications in Landscape Architecture (2 cr)
- LArc 247 Landscape Graphics (3 cr)
- LArc 259 Landscape Architecture I (6 cr) (with instructor's perm)
- LArc 270 Landscape Construction I (4 cr)
- LArc 288 Plant Materials I (3 cr)
- LArc 289 Plant Materials II (4 cr)
- LArc 371 Landscape Construction II (4 cr)
- LArc 385 GIS Primer (3 cr)
- LArc 490 Computer-Aided Regional Landscape Planning (3 cr)

## Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Landscape Architecture. See the College of Graduate Studies section of part 4 for the general requirements applicable to the degree.

**Master of Science.** The Department of Landscape Architecture offers the M.S. degree with a major in landscape architecture in collaboration with the Department of Horticulture and Landscape Architecture at Washington State University at Pullman and the Interdisciplinary Design Institute (IDI) at Washington State University at Spokane. Students may enroll at any one of the three locations and take advantage of the faculty, facilities, and other resources offered at the other two. Graduate-level courses are cross listed and, where appropriate, offered electronically.

The two-year course of study requires a minimum of 40 credits with at least 24 credits in landscape architecture. Information on specialization tracks can be obtained from the department.

# Program in Latin American Studies

**Dale T. Graden, Coordinator (305-A Admin. Bldg. 83844-3175; phone 208/885-8956; graden@uidaho.edu).** ***Faculty:*** **Judith A. Baker, Dale T. Graden, Sam H. Ham, Peter E. Isaacson, Irina Kappler-Crookston, Richard M. Keenan, William J. McLaughlin, Michael W. Moody, Laura Putsche, Margaret Van Epp Salazar, Raúl Sánchez, Merrie R Siegel, William L. Smith, Mary H. Voxman, Dennis D. West.**

The program in Latin American studies is a multidisciplinary major leading to the B.A. degree. The appeal of this field of study has greatly increased over the last decade, due to the region's growing economic and political importance. A degree in the major is appropriate for employment in many fields, among which are the diplomatic service and overseas business as well as graduate study in various disciplines. Students electing the major will also broaden their awareness of non-Western cultures and history.

## Courses

See part 6 for courses in Latin-American Studies (LAS).

## Undergraduate Curricular Requirements

### LATIN-AMERICAN STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, including Spanish for the foreign language requirement, and:

Hist 435 Latin America: The Colonial Era (3 cr)
Hist 438 Modern Mexico or 439 Modern Latin America (3 cr)
Span 306 Culture and Institutions of Latin America (3 cr)
Span 401-402 Readings: Spanish Literature and Spanish American Literature (6 cr)
And at least seven of the following courses (or the optional courses listed above) (21 cr):

- Anth 220 Peoples of the World
- Anth 462 Human Issues in International Development
- *Econ 447 Economics of Developing Countries
- FLEN 391 or Span 307 Hispanic Film
- FLEN 394 Latin American Literature in Translation
- Hist 210 Introduction to Modern Latin American History
- Hist 315 Comparative African-American Cultures
- Hist 440 Social Revolution in Latin America
- Hist 441 Comparative Slavery and Emancipation in the Atlantic World
- LAS 410 Human Rights in Latin America
- RRT 493 International Land Preservation and Conservation Systems
- Span 402 Readings: Spanish American Literature
- Span 404 Special Topics (with prior approval of program coordinator)

*Students are strongly urged to elect those courses marked with an asterisk and to take Hist 101-102 (History of Civilization) in their freshman year.

# Department of Materials, Metallurgical, Mining, and Geological Engineering

**Francis H. (Sam) Froes, Dept. Head (203 McClure Hall. 83844-3024; phone 208/885-6376).**

***Materials and Metallurgical Engineering Faculty:*** **Sarit B. Bhaduri, Francis H. (Sam) Froes, Yang-Ki Hong, Batric Pesic, T. Alan Place, Keith A. Prisbrey**

***Mining and Geological Engineering Faculty:*** **Eric Asa, Kousick Biswas, Gary S. Johnson, S. J. Jung, Stanley M. Miller, Michael J. Nicholl, Kenneth F. Sprenke, John R. Sturgul.**

To advance our present standard of living, it is necessary to utilize scientific and technological capabilities to convert mineral resources into products useful for humanity. The disciplines contained within the Department of Materials, Metallurgical, Mining, and Geological Engineering are all major players in providing students with the necessary scientific and technological training.

**Geological engineering** is the professional discipline that relies on the use of geologic conditions and implications for (1) the design and construction of civil and mining projects, (2) the evaluation and mitigation of natural and human-caused geologic hazards, and (3) the exploration and development of mineral and energy resources. The B.S. Geological Engineering program provides its students with a thorough educational experience in applied geology, in the engineering sciences, and in the integration of geologic concepts into engineering evaluation and design.

**Mining engineering** includes a wide variety of mining technologies and engineering sciences devoted to the extraction or separation of various mineral products (fuels, metals, and nonmetals). Separation of these minerals from the ground requires knowledge of equipment, manpower, and economics, and the application of reclamation, environmental control, legal, social, and administrative talents. The B.S. in Mining Engineering provides a coordinated program of all engineering fields and administrative talents employed in extracting these materials from the earth and making them available economically.

**Metallurgical engineering** is the technology that enables us to economically remove metals, nonmetals, or fuel elements from rock, and even water, and then efficiently fabricate them into forms useful to humanity. Metallurgical engineering involves the use of sciences and academic information from other fields to provide these metals for the everyday products we use in our industries and homes

**Materials science and engineering** is the broader field encompassing metals, ceramics, and polymers, and hybrid device materials such as electronic and magnetic materials. Materials that have been fabricated in a controlled fashion are pervasive to modern day society, making communication, transportation, recreation, daily living, and a healthful environment possible. Thus in the past few years the department's traditional emphasis on metals has been broadened to include other classes of materials and processes. Bachelor of science degrees are offered in both metallurgical engineering and in materials science and engineering. A dual degree can be obtained by completing an extra semester of coursework.

Although the department emphasizes economics and technology, engineering training also includes environment concerns, ethical behavior, and safety concerns. As technological and engineering fields, these professional disciplines offer tremendous opportunities for the person who wishes to become involved in the application of natural mineral resources, often in sophisticated designs, to the preservation and enhancement of our society. The department provides the technical training to prepare our graduates for productive and rewarding engineering careers.

The department's educational mission is to produce graduates who are equipped to begin competitive and productive careers in their engineering professions; who can define and solve engineering problems to meet desired needs and produce societal benefits; and who understand the importance of working responsibly, acting ethically, and pursuing continued professional growth.

In line with this mission statement, our objectives in our B.S. engineering programs are to educate students who will (1) have a solid foundation in the principles of mathematics and science and can apply these principles to formulating and solving engineering problems; (2) be current in modern technology and in the tools of engineering practice applicable to their own specific engineering disciplines; (3) have a broad education to understand current economic and societal issues associated with engineering projects and their impacts, and to appreciate the engineer's responsibility to uphold public and occupational health and safety; (4) have the ability to communicate effectively with engineers and non-engineers while working independently or on teams to develop engineering solutions; and (5) have an understanding of their professional and ethical responsibilities as engineers, and realize the importance of life-long learning and continued professional growth.

The department continuously strives to improve our programs. This is done by surveying constituency groups such as current students, graduating seniors, alumni and their employees, and the college advisory board. The information gathered is then used in a feedback fashion to improve the quality of individual courses and the programs in general.

Laboratories for the technologies of rock mechanics, geotechnics, surveying, ventilation, and computer applications in simulation, optimization, and mine planning are available in mining and geological engineering. The laboratory facilities for materials and metallurgical engineering include: comminution and particulate processing; transport phenomena and reactor design; hydro-, pyro-, and electro-processing of materials; microstructure and physical metallurgy; advanced materials processing (including plasma processing, mechanical alloying, combustion synthesis, and other state of the art technologies), and characterization (including TEM,

SEM, TGA/DTA, etc.). These laboratories provide an understanding both of the technology required to convert minerals into useful products, the characterization of these materials, and the physical and mechanical behavior of these materials.

Faculty in all disciplines in the department have proven their qualifications by their credentials in national and international professional societies. They are well known by their publications, research, and contract work. Most students find employment in the summer or on a cooperative basis, so that they can become more intimately involved in the disciplines that they are studying. Exposure to the department faculty members provides students with a one-to-one interaction and an expertise that enables them to be truly competitive when they enter the real world.

The programs are designed to take advantage of the other excellent facilities of the university and other engineering disciplines. The programs of study also include involvement with practical aspects of professional practice by exposure to the regional industries and research groups through field trips, guest speakers, study problems, and work time during the summer. Mining, construction, and materials/metallurgical operations in the Northwest are plentiful and modern.

Most students find employment in the summer or on a cooperative basis, so that they can become more intimately involved in the processes that they are studying. The total program enables the person to leave the university with confidence, either as a baccalaureate student or at the master's or doctoral level, with the capability of a truly competent professional.

The department offers the Master of Science (M.S.) degree in geological engineering, materials science and engineering, metallurgical engineering, metallurgy, and mining engineering and the Doctor of Philosophy (Ph.D.) degree in materials science and engineering and mining engineering-metallurgy. These programs include a mix of theoretical and practical study most appropriate to each student. Many studies include mathematical, statistical, and computer applications to specific processes or investigations; and excellent computer facilities are readily available. Some students prefer to work on applied problems that are presented by industry or research establishments in the area, generally with funding from outside sources. Studies can be tailored to individual interests.

These advanced studies are financed by research grants, an industry sponsor, or occasionally by departmental funding. They are designed to train the individual in research methods and investigative procedures that will later enhance his or her ability in industrial or research environments or in teaching. The master’s program involves both class work and research; the latter being designed to familiarize the student with research methods. In the doctoral program, the student is expected to break new ground and advance the field both scientifically and to maintain the competitive technological lead enjoyed in the U.S. for so many years. The master's program generally requires 12 to 18 months beyond the baccalaureate degree and the doctoral program usually entails at least three years beyond the baccalaureate degree.

## Courses

See part 6 for courses in Geological Engineering (GeoE), Materials Science & Engineering (MSE), Metallurgical Engineering (Met), Mining Engineering (Min), and Mining Engineering-Metallurgy (MnMt).

## Undergraduate Curricular Requirements

### GEOLOGICAL ENGINEERING (B.S.Geol.E.)

As part of a cooperative program with Oregon State University, Oregon resident students may enroll in this program and will not be charged out-of-state tuition by UI.

Note: All students are encouraged to take the eight-hour Fundamentals of Engineering (FE) examination the last semester of their senior year, leading to a Professional Engineering license.

Required course work includes the university requirements (see regulation J-3) and:

GeoE 130 Engineering Analysis and Computations (3 cr)
GeoE 210 Introduction to Geological Engineering (1 cr)
GeoE 312 Geological Engineering Materials (3 cr)
GeoE 352 Cost Engineering and Management (3 cr)
GeoE 360 Geologic Hazards (3 cr)
GeoE 372 Subsurface Ventilation and Environmental Management (3 cr)
GeoE 401 Field Geology and Report Writing (6 cr)
GeoE 407 Rock Mechanics (3 cr)
GeoE 409 Quantitative Hydrogeology (3 cr)
GeoE 421 Engineering Geophysics (3 cr)
GeoE 428 Geostatistics (3 cr)
GeoE 435 Geological Engineering Principles (3 cr)
GeoE 436 Geological Engineering Design (3 cr)
Geol 111 Physical Geology for Science Majors (4 cr)
Geol 324 Principles of Stratigraphy and Sedimentation (3 cr)
Geol 345 Structural Geology (3 cr)
One course from the following (3-4 cr):
    GeoE 410 Techniques of Groundwater Study

CE 360 Fundamentals of Geotechnical Engineering
Min 351 Optimization of Engineering Systems
One course from the following (3 cr):
GeoE 420 Erosion and Sediment Control
GeoE 468 Aquifer Test Design and Analysis
Min 410 Simulation of Engineering Systems
Chem 111, 112 Principles of Chemistry I-II (9 cr)
CE 211 Engineering Measurements (3 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211, 212 Engineering Physics I-II (8 cr)
Stat 301 Probability and Statistics (3 cr)
Humanities and social sciences electives – must satisfy regulation J-3 and include at least 6 cr of courses numbered 200 or above (15 cr)
Technical electives approved by department (9 cr)

The minimum number of credits for the degree is 134, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

## MATERIALS SCIENCE AND ENGINEERING (B.S.M.S.E.)

MSE 101 Intro to Metallurgy and Materials Science (1 cr)
MSE 130 Engineering Analysis and Computations (3 cr)
MSE 201 Elements of Materials Science (3 cr)
MSE 308 Thermodynamics of Materials (3 cr)
MSE 309 Transport Phenomena for Design (4 cr)
MSE 313 Physical Metallurgy (4 cr)
MSE 341 Particulate Materials Processing (4 cr)
MSE 411 Phase Equilibria in Materials (3 cr)
MSE 412 Mechanical Behavior of Materials (3 cr)
MSE 414 Process Design (3 cr)
MSE 415 Materials Selection and Design (3 cr)
MSE 417 Instrumental Analysis (3 cr)
MSE 423 Corrosion (3 cr)
MSE 427 Ceramic Materials (3 cr)
MSE 430 Electronic, Optical, and Magnetic Properties of Materials (3 cr)
MSE 432 Fundamentals of Thin Film Fabrication (3 cr)
MSE 434 Fundamentals of Polymeric Materials (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 305 Physical Chemistry (3 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engl 102 Essay Writing (3 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211, 212 Engineering Physics I, II (8 cr)
Stat 301 Probability and Stat or CE 402 Applied Numerical Methods for Engineers (3 cr)
Humanities and social science electives--must satisfy regulation J-3 and ABET criteria and include at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite (15 cr)
Technical electives (9 cr)

The minimum number of credits for the degree is 129, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

## METALLURGICAL ENGINEERING (B.S.Met.E.)

As part of a cooperative program with Oregon State University, Oregon resident students may enroll in this program and will NOT be charged out-of-state tuition by UI.

Note: All students are encouraged to take the eight-hour FE examination the last semester of their senior year, leading to a Professional Engineering license.

Required course work includes the university requirements (see regulation J-3) and the following:

Met 101 Intro to Metallurgy and Materials Science (1 cr)
Met 130 Engineering Analysis and Computations (3 cr)
Met 201 Elements of Materials Science (3 cr)
Met 308 Thermodynamics of Materials (3 cr)
Met 309 Transport Phenomena for Design (4 cr)
Met 313 Physical Metallurgy (4 cr)
Met 341 Particulate Materials Processing (4 cr)
Met 344 Hydroprocessing of Materials (4 cr)
Met 407 Materials Fabrication (3 cr)
Met 411 Phase Equilibria in Materials (3 cr)
Met 412 Mechanical Behavior of Materials (3 cr)
Met 414 Process Design (3 cr)
Met 415 Materials Selection and Design (3 cr)
Met 417 Instrumental Analysis (3 cr)
Met 442 Pyroprocessing of Materials (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Prin of Chem II (5 cr)
Chem 305 Physical Chemistry (3 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Min 352 Cost Engineering and Management (3 cr)
Phys 211, 212 Engineering Physics I, II (8 cr)
Stat 301 Probability and Stat or CE 402 Applied Numerical Methods for Engineers (3 cr)
Humanities and social science electives--must satisfy regulation J-3 and ABET criteria and include at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite (15 cr)
Technical electives (9 cr)

The minimum number of credits for the degree is 131, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

## MINING ENGINEERING (B.S.Min.E.)

As part of a cooperative program with Oregon State University, Oregon resident students may enroll in this program and will NOT be charged out-of-state tuition by UI.

Note: Approved field experience, appropriate summer employment, or an applied course in mine surveying and geologic mapping is recommended before graduation. All students are encouraged to take the eight-hour FE examination the last semester of their senior year, leading to a Professional Engineer license.

Required course work includes the university requirements (see regulation J-3) and the following:

Min 103 Elements of Mining (2 cr)
Min 130 Engineering Analysis and Computations (3 cr)
Min 290 Mine Development (2 cr)
Min 304 Blasting Engineering (3 cr)
Min 310 Safety Engineering in Excavation Industries (3 cr)
Min 351 Optimization of Engineering Systems (3 cr)
Min 352 Cost Engineering and Management (3 cr)
Min 370 Auxiliary Operations in Excavation Industries (3 cr)
Min 372 Subsurface Ventilation and Environmental Management (3 cr)
Min 401 Rock Mechanics w/ Lab option (3-4 cr)
Min 440 Mine Modeling and Feasibility Studies (3 cr)
Min 450 Surface Mine Design (3 cr)
Min 451 Underground Mine Design (3 cr)
Chem 111, 112 Principles of Chemistry I-II (9 cr)
CE 211 Engineering Measurements (4 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)

Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engl 317 Technical Writing (3 cr)
Geol 111 Physical Geology for Science Majors (4 cr)
GeoE 312 Geological Engineering Materials (3 cr)
GeoE 435 Geological Engineering Principles (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Met 205 Introduction to Metallurgy (3 cr)
Phys 211, 212 Engineering Physics I, II (6 cr)
Stat 301 Probability and Statistics (3 cr)
Humanities and social sciences electives--must satisfy regulation J-3 and ABET criteria and include at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite (16 cr)
Technical electives (approved by dept) (6 cr)

Students who wish to graduate with a quarry emphasis (1) are not required to take Min 351, 372, 402, and 451, and (2) add the following required courses:

Min 304 Blasting Engineering (3 cr)
Min 350 Economics of Aggregate and Crushed Stone (3 cr)
Min 405 Development of Industrial Minerals Deposits (3 cr)
Min 410 Simulation of Engineering Systems (3 cr)

The minimum number of credits for the degree is 134 (or 132 for the degree with the quarry emphasis), exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

## Academic Minor Requirements

### METALLURGICAL ENGINEERING MINOR

Met 201 Elements of Materials Science or ME 261 Engineering Materials (3 cr)
Met 309 Metallurgical Transport Phenomena (3 cr)
Met 310 Metallurgical Reactor Design (3 cr)
And one of the following sets of courses:

Met 313, 316 Physical Metallurgy I and II (7 cr)
Phys 212 Engineering Physics II (3 cr)
or
Met 211 Metallurgical Mass and Energy Balance (3 cr)
Met 341 Particulate Materials Processing (4 cr)
Met 344 Hydroprocessing of Materials (4 cr)

### MINING ENGINEERING MINOR

Min 103 Elements of Mining (3 cr)
Min 118 Miner Safety Training (1 cr)
Min 401 Rock Mechanics (3 cr)
Min 450 Surface Mine Design (2 cr)
Min 452 Surface Mine Design Lab (1 cr)
Courses selected from the following (8 cr):

Min 304 Explosives
Min 352 Cost Engineering and Management
Min 370 Mine Services
Min 372 Mine Ventilation
Min 451 Underground Mine Design
Min 455 Resource Feasibility Studies
Min 472 Mineral Industry Case Studies

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Materials, Metallurgical, Mining, and Geological Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** General M.S. requirements apply. Majors are available in geological engineering, materials science and engineering, metallurgical engineering, and mining engineering. As a preparation for admission to a degree program the candidate should have the equivalent undergraduate degree or a B.S. degree in engineering with extra study in mining, metallurgy, or geology. Special programs can be developed from almost any basic degree in which deficiencies in the engineering and mining industry studies are removed by undergraduate or special studies. A thesis of 6 to 10 credits is required.

A nonthesis option in geological engineering is available, at the discretion of the advisor, for students with several years of professional experience.

Master of Science degrees in geological engineering, metallurgical engineering, and mining engineering are offered through the Engineering Outreach program. Degrees through Engineering Outreach have both thesis and nonthesis options, but otherwise have the same requirements (i.e., 30 credits) as degree programs offered on the Moscow campus. A nondegree Certificate of Completion in Applied Geotechnics (12 credits) is also offered through Engineering Outreach.

**Master of Science.** Major in metallurgy. The M.S. (metallurgy) is a thesis or nonthesis degree at the discretion of the student's advisor, offered both on the Moscow campus and at the University of Idaho Center, Idaho Falls.

**Doctor of Philosophy.** General Ph.D. requirements apply. Majors are available in materials science and engineering and mining engineering-metallurgy. Applicants are expected to have the same prerequisites as specified for the Master of Science degree.

# Department of Mathematics

**Monte Boisen, Dept. Chair (300 Carol Ryrie Brink Hall 83844-1103; phone 208/885-6742; math@uidaho.edu; http://www.uidaho.edu/LS/Math).** ***Faculty:*** **Gail H. Adele, Arie Bialostocki, Dora Bialostocki, Larry E. Bobisud, Monte Boisen, Willy Brandal, Jr., John I. Cobb, Frank Gao, Paul Joyce, Stephen M. Krone, Mark J. Nielsen, Ralph J. Neuhaus, Cynthia M. Piez, William D. Royalty, Hunter S. Snevily, Kirk C. Trigsted, Mary H. Voxman, William L. Voxman, Hong Wang.**

The Department of Mathematics offers a wide variety of majors and minors. In addition to the degree programs described below, many students pursue joint majors in mathematics and other disciplines that utilize mathematics. The most popular of these are mathematics/computer science and mathematics/physics. A joint major is obtained by completing the degree requirements for both majors. Minor programs are described below under "Curricular Requirements."

At the graduate level, the department offers the M.S., M.A.T., and Ph.D. degrees in mathematics. Graduate training in mathematics prepares students for careers in teaching or research and development. Employment opportunities include universities, colleges, industries, and government agencies. The Ph.D. is generally required for teaching and research at the university level. The M.S. qualifies students to teach at junior colleges, some four-year colleges, and for many positions in industry. The M.A.T. prepares students for secondary teaching and for some junior college positions. A baccalaureate degree in mathematics is generally required for admission to the graduate program; however, many students of science and technology can be admitted to the program with few undergraduate deficiencies.

The need for persons with quantitative skills is increasing dramatically as the world grows more complex. Mathematicians and statisticians have employment opportunities in business, industry, government, and teaching. Training in mathematics, with its emphasis on problem solving, analysis, and critical thinking, is excellent preparation for graduate programs in engineering, science, business, or law. In fact, persons planning careers in almost any field will find their opportunities enhanced by the study of mathematics and statistics. The programs are intended to provide students just such enhancement. It is generally the case that the person who develops his or her quantitative skills has increased ability to attack many of the complex problems of society. Advances in science, technology, the social sciences, business, industry, and government become more and more dependent on precise analysis and the extraction of information from large quantities of data. Environmental problems, for example, require careful analysis by persons (or teams of persons) with skills in mathematics, statistics, and computer science as well as in biology, geology, physics, and many other fields.

The demand for teachers of mathematics is greater now than ever before. Nearly every school district in the nation has a shortage of teachers trained in mathematics. UI offers a broadly based program leading to teacher certification, through enrollment either in the Department of Mathematics or in the College of Education and completion of a major or minor in mathematics.

**Mathematics.** The body of mathematical knowledge that has grown over the past 2,000 years is a magnificent human achievement, and it is growing more rapidly than ever before. The habits of systematic and creative thought developed in the study of mathematics are recognized as invaluable in most areas of human endeavor. UI's B.A. and B.S. programs in mathematics are designed to introduce the student to the excitement of mathematical ideas; they allow the maximum possible freedom to explore those areas of mathematics that the student finds most interesting.

The department has a sound program in mathematics with a proven record of preparing students for successful graduate study at the very best universities in the nation. There are sequences of courses in calculus, advanced calculus, linear algebra, differential equations, number theory, abstract algebra, topology, geometry, statistics, complex analysis, and mathematical analysis. Students of mathematics who do not go to graduate school are well prepared for industrial, governmental, or teaching jobs if they have some additional exposure to computer science, education, or one of the natural, social, or applied sciences.

**Applied Mathematics.** Many of the greatest achievements in mathematics were inspired by problems in the natural sciences; today mathematics has wide application in both the natural and social sciences. Applied mathematics provides a broad arena for intellectual and creative impulses of people. The B.S. in applied mathematics allows a choice of the actuarial science, computation, operations research, scientific, or statistics options. Each of these is discussed briefly below. Many students interested in applications of mathematics pursue a joint major in some other department.

*Actuarial Science Option.* An actuary applies mathematics and statistics to forecasting problems. Actuaries are employed by financial institutions, government, insurance companies, and international corporations. They address problems as diverse as economic fluctuations, population demographics, resource consumption, medical insurance rates, and retirement needs. Actuaries are in great demand and have many interesting career opportunities leading often to high management positions. Admission to the actuarial profession is governed by a series of examinations administered by the actuarial societies. The first two examinations can be taken by undergraduates, and the rest are usually taken while working in the industry. The first two examinations are given locally. Our actuarial science option, review seminars, and summer internship program with actuarial companies prepare students for these tests.

*Computation Option*. The advent of computers has changed nearly every aspect of society. As computation has become both more important and more feasible, it has inspired the development of several fields of study within mathematics. The computation option of the applied mathematics degree provides training in the mathematics applicable to computer science and technology. Many students pursue this option jointly with a computer science major.

*Operations Research Option*. This option is designed to prepare students for careers in business planning and management. The emphasis of study is on the mathematics used in modeling and analysis of real-world problems. This program is an excellent preparation for students planning to pursue an MBA degree.

*Scientific Option*. This option for the applied mathematics degree provides background sufficient for a career in science or technology. Completing this option jointly with a major in one of the sciences gives excellent preparation for graduate work in scientific research. Due to its flexibility in choosing courses, students from many scientific disciplines will find this option appealing.

*Statistics Option*. Statistics encompasses course work in designing and analyzing experiments, planning and interpreting surveys, and exploring relationships among variables observed on social, physical, and biological phenomena. The applied nature of the program allows the student to develop data analysis tools for such diverse areas as business and economics, crop and animal production, biological sciences, human behavior, education, engineering, and natural resource management. The statistics program thus serves to support major programs in other disciplines. Within the department, a statistics option is available under applied mathematics leading to a baccalaureate degree, and an M.S. degree in statistics is offered at the graduate level through the Division of Statistics.

Faculty members in the Department of Mathematics will be happy to answer questions about specific programs and courses. Such questions can also be addressed to the department chair (Brink 300; telephone 208/885-6742).

## Courses

See part 6 for courses in Mathematics (Math).

## Undergraduate Curricular Requirements

### MATHEMATICS (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 215 Seminar in Topology of the Plane (3 cr)
Math 330 or 440 Linear Algebra (3 cr)
Math 461 Abstract Algebra (3 cr)
Math 471 Advanced Calculus (3 cr)
Math 462 Abstract Algebra or 472 Advanced Calculus (3 cr)
Math electives in courses numbered 300-499, at least 6 cr of which are in courses numbered above 401 (12 cr)
Phys 211, 212 Engr Physics I, II, and either Phys 213 or an upper-division physics course with a Math 170 prereq (to acquaint the student with an area in which math is systematically applied; upon approval of the dept, substitution of other courses to meet this requirement may be allowed) (9 cr)

### MATHEMATICS: APPLIED (B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 330 Linear Algebra (3 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)

And one of the following options:

**A. STATISTICS OPTION**

Math 451 Probability Theory (3 cr)
Math 452 Mathematical Statistics (3 cr)
Math 453 Stochastic Models (3 cr)
One course selected from the following (3-4 cr):
- Stat 301 Probability and Statistics (recommended)
- Stat 251 Principles of Statistics
- Stat 271 Statistical Inference and Decision Analysis

At least two courses from the following (6 cr):
- Math 426 Discrete Optimization
- Math 432 Numerical Linear Algebra
- Math 433 Numerical Analysis
- Math 471-472 Advanced Calculus
- Math 475 Analysis of Algorithms

CS 113 Program Design and Algorithms
At least two courses from the following (5-6 cr):
Stat 401 Statistical Analysis
Stat 422 Sample Survey Methods
Stat 507 Experimental Design
Stat 510 Regression
Stat 514 Nonparametrics
Stat 521 Multivariate Analysis
Approved electives in fields where statistics is applied (not to be in stat courses) (6 cr)

**B. COMPUTATION OPTION**

Math 432 Numerical Linear Algebra or 426 Discrete Optimization (3 cr)
Math 433 Numerical Analysis (3 cr)
Math 475 Analysis of Algorithms (3 cr)
CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
At least three courses from the following, incl at least one course numbered 346 or above (9 cr):
Math 310 Ordinary Differential Equations
Math 326 Linear Programming
Math 346 Applied Combinatorics
Math 376 Discrete Mathematics II
Math 485 Theory of Computation
Stat 301 Probability and Statistics
Two additional math courses numbered 400-499 (6 cr)

**C. SCIENTIFIC OPTION**

Math 310 Ordinary Differential Equations (3 cr)
Math 480 Partial Differential Equations (3 cr)
Stat 301 Probability and Stat or Math 451 Probability Theory (3 cr)
At least two courses from the following (5-6 cr):
Math 202 Seminar
Math 420 Complex Variables
Math 432 Numerical Linear Algebra
Math 433 Numerical Analysis
Five additional math courses selected from 326, 346, or courses numbered 400-499 (15 cr)

**D. ACTUARIAL SCIENCE OPTION**

Math 310 Ordinary Differential Equations (3 cr)
Math 451 Probability Theory (3 cr)
Math 452 Mathematical Statistics (3 cr)
Math 455 Applied Actuarial Science II (0 cr)
Three math courses numbered above 400, excluding Math 513-519 (9 cr)
Acct 201-202 Introduction to Accounting (6 cr)
Bus 301 Financial Management (3 cr)
Bus 364 Insurance (3 cr)
At least one course selected from the following (3 cr):
Bus 332 Quantitative Methods in Business
Bus 401 Investments
Bus 405 Portfolio Management
Econ 351 Intermediate Macroeconomic Analysis
Econ 352 Intermediate Microeconomic Analysis
Econ 201, 202 Principles of Economics (6 cr)
One course selected from the following (3-4 cr):
Stat 301 Probability and Statistics (recommended)
Stat 251 Principles of Statistics
Stat 271 Statistical Inference and Decision Analysis
Stat 401 Statistical Analysis (3 cr)
One course selected from the following (3 cr):
Stat 433 Econometrics
Stat 510 Regression
Stat 525 Econometrics

**E. OPERATIONS RESEARCH OPTION**

Math 326 Linear Programming (3 cr)
Math 346 Applied Combinatorics (3 cr)
Math 426 Discrete Optimization (3 cr)
Math 451 Probability Theory (3 cr)
Math 453 Stochastic Models (3 cr)

At least one course from the following (3 cr):
- Math 310 Ordinary Differential Equations
- Math 376 Discrete Mathematics II
- Math 452 Mathematical Statistics
- Stat 401 Statistical Analysis
- Any other 400-level math course

Acct 202 Introduction to Managerial Accounting (3 cr)
Bus 370 Production/Operations Management (3 cr)
Stat 271 Statistical Inference and Decision Analysis or 301 Probability and Statistics (3-4 cr)
Four of the following courses (two must be above 400) (12 cr):
- Econ 453/Stat 433 Econometrics
- Bus 332 Quantitative Methods in Business
- Bus 350 Management Information Systems
- Bus 355 Systems Analysis and Design
- Bus 378 Project Management
- Bus 437 Statistics for Business Decisions
- Bus 439 Systems and Simulation
- Bus 456 Quality Management
- Bus 472 Operations Planning and Scheduling

## Academic Minor Requirements

### MATHEMATICS MINOR

Math 170, 175 Analytic Geometry and Calculus (8 cr)
Six math courses chosen from Math 275, Stat 301, and math courses numbered 300-499 (18 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Mathematics. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science in Mathematics.** General M.S. requirements apply. A prerequisite is the equivalent of an undergraduate major in mathematics. Of the minimum of 30 credits required for this degree, at least 24 must be in mathematics. A thesis is not required, but a comprehensive written examination covering the course work (and possibly other fundamentals of mathematics) is required.

**Master of Arts in Teaching.** General M.A.T. requirements apply. Under advisement of the major professor and committee, a broadly based study plan is designed taking into consideration the candidate's interests and teaching needs. The plan should include mathematics courses from several pure mathematics areas, for example, algebra, topology, analysis, geometry, and number theory. A three-hour written examination is given over the courses in the study plan. Students entering the M.A.T. program will be considered deficient if they have not completed a standard sequence in calculus (equivalent to Math 170-175-275).

The M.A.T. degree in mathematics may also be obtained via distance learning. This distance learning program is designed to meet the needs of in-service teachers. The requirements outlined above apply, but here the study plan is designed using courses that are available by video or in summer programs on-campus or at off-campus sites.

**Doctor of Philosophy.** In addition to the general requirements for the Ph.D., the department requires that 42 credits of graduate-level mathematics be completed or transferred. The department requires the ability to translate into English from mathematical work in one of the languages: French, German, and Russian; a substitute language is sometimes allowed.

The preliminary examination must be taken after the language requirement and most of the study plan have been completed and before the dissertation is started. The preliminary examination is composed of three parts, each of which covers one of the areas: algebra, analysis, topology, combinatorics, and probability/mathematical statistics. At least two of these parts must be in the first three areas listed. These are given all in a one-week period and are graded by a departmental committee that may recommend additional testing in one or more of the specific areas if satisfactory results are not obtained. The committee may also recommend an oral examination in certain areas by the supervisory committee.

The dissertation must be of an original research nature and be in an area spanned by the research interests of the major professor. A final examination that amounts to a defense of the dissertation is required.

# Department of Mechanical Engineering

**Ralph S. Budwig, Dept. Chair (324I Engineering/Physics Bldg. 83844-0902; phone 208/885-6579; rbudwig@uidaho.edu; www.uidaho.edu/engr/ME).** ***Faculty:*** **Michael J. Anderson, Tony J. Anderson, Steven W. Beyerlein, Donald M. Blackketter, Ralph S. Budwig, John C. Crepeau, Karen R. Den Braven, Dean B. Edwards, Donald F. Elger, Richard T Jacobsen, E. Clark Lemmon, Edwin M. Odom, Steven G. Penoncello, T. Alan Place, Karl K. Rink, Ronald E. Smelser, Larry A. Stauffer, Judith A. Steciak, Robert R. Stephens, Robert R. Stiger, David E. Thompson.**

**Mechanical engineering** is concerned with the application of the principles of science and technology in the creation of products and systems to benefit mankind in several areas including: (1) the conversion of energy from natural sources to provide power, light, heating and cooling, and transportation; (2) the design and production of machines to extend and to lighten the burden of human work; (3) the creative planning, design, development, and operation of systems for utilizing energy, machines, and other resources; (4) the production of manufactured goods; and (5) the interface between technology and society.

Mechanical engineering is broad in scope and provides a wide range of careers for trained professionals in industry, business, government, and universities. Positions are available in design, testing, manufacturing, research, development, operations, system analysis, marketing, and administration. Mechanical engineers are often involved as professional team members in economic and social-humanistic matters and are responsible for the interaction of technical advances with social and environmental concerns.

**Departmental Objective Statement.** Our objectives are based on the needs of our constituencies. We focus on the professional and personal development of our students. We continuously assess and improve our ABET accredited undergraduate curriculum.

The strengths of our curriculum are (1) a strong engineering science foundation as demonstrated by outstanding Fundamentals of Engineering Exam performance, (2) a strong design experience featuring design and construction of several projects, (3) a strong laboratory experience featuring hands-on skills, state-of-the-art instrumentation, broad exposure to instrumentation and principles, and a senior project, (4) multiple teamwork experiences, including the opportunity to lead and to serve in team roles, (5) substantial use of appropriate engineering tools, including the best available software, and (6) multiple communication experiences including writing and oral presentations.

Students in our program develop (1) the ability to use modern engineering techniques, skills, and tools to identify, formulate, model, and solve problems by applying mathematics, science, and engineering while considering how contemporary global and societal issues impact the solutions, (2) the ability to design and conduct experiments and to analyze and interpret data, (3) the ability to model and design a thermal system, a mechanical system, a component, or a process to meet specified requirements, and (4) the ability to work on a team and to effectively communicate with others including those outside their discipline.

Students use the knowledge and skills acquired in earlier course work and incorporate engineering standards and realistic constraints (economic, environmental, sustainability, manufacturability, ethical, health and safety, social, and political) in their industrially or internally sponsored year-long senior capstone design projects.

Students interact frequently and personally with the faculty and are mentored and advised by the faculty. These interactions foster professional and ethical responsibility, creative discovery, and a commitment to lifelong learning.

Our department is a college and university leader in the use of innovative teaching methods, in horizontal and vertical curriculum integration, and in the use of applied design projects.

Faculty members are available to discuss details of the program in their specialty areas with interested students. General questions regarding the undergraduate program should be addressed to the department office (telephone 208/885-6579; mfoto@uidaho.edu).

A degree in manufacturing engineering may be available in the future when resources become available. An academic minor in mechanical engineering is available. Contact the department for more information.

**Mechanical Engineering Graduate Program.** The following graduate degrees are available in mechanical engineering: Ph.D., M.S., and M.Engr. (nonthesis degree). The department also offers the Master of Engineering with a major in systems engineering. It may offer in the future M.S. and M.Engr. degrees in manufacturing engineering. In addition, the Ph.D., M.S., and M.Engr. in nuclear engineering are offered at the UI/Idaho Falls Center for Higher Education. Minimum preparation for graduate study in mechanical engineering is a B.S. degree in a curriculum in mechanical engineering that is accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.). Students entering the program with an engineering or physical science baccalaureate degree in a major other than mechanical engineering must demonstrate proficiency in the subjects required in the B.S.M.E. program. Individual student qualifications are assessed by the departmental graduate committee, which also determines undergraduate deficiencies.

The programs of study are designed to extend the student's understanding of the fundamental engineering sciences and their application to engineering systems design and analysis. Research programs are offered with specialization in the following general areas: (1) thermodynamics, fluid dynamics, and heat transfer, (2) materials and applied mechanics, and (3) product and process design including control systems, automation, robotics, materials, and manufacturing.

Graduate students will develop a plan of study in consultation with their academic advisor that will provide for reasonable concentration in a particular field of interest and a selection of related courses, some of which may be taught outside of the department. The thesis topic will generally be selected from research topics being pursued by members of the departmental faculty.

## Courses

See part 6 for courses in Mechanical Engineering (ME) and Systems Engineering (SysE).

## Undergraduate Curricular Requirements

### MECHANICAL ENGINEERING (B.S.M.E.)

This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Note: Pre-advising is required to register in any ME course. To graduate in this program, a minimum grade of C must be earned in all required courses except ME 426 and 430.

Required course work includes the university requirements (see regulation J-3) and:

ME 123 Introduction to Mechanical Design (3 cr)
ME 223 Mechanical Design Analysis (3 cr)
ME 261 Engineering Materials or Met 201 Elements of Materials Science (3 cr)
ME 262 Sophomore Laboratory (3 cr)
ME 301 Advanced Engineering Graphics (3 cr)
ME 313 Dynamic Modeling of Engineering Systems (3 cr)
ME 323 Mechanical Engineering Design Seminar (3 cr)
ME 324 Dynamic Analysis in Machine Design (3 cr)
ME 330 Experimental Methods for Engineers (3 cr)
ME 341 Intermediate Mechanics of Materials (3 cr)
ME 345 Heat Transfer (3 cr)
ME 424 Mechanical Systems Design I (3 cr)
ME 425 Machine Component Design (3 cr)
ME 426 Mechanical Systems Design II (3 cr)
ME 430 Senior Laboratory (3 cr)
ME 435 Thermal Energy Systems Design (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
CE 411 Engineering Fundamentals (1 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Engl 317 Technical Writing (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 310 Ordinary Differential Equations (3 cr)
Phys 211, 212, 213 Engineering Physics I-II-III (12 cr)
Humanities and social sciences electives, incl AmSt 301or Phil 103, and Econ 201 or 202 or 272 (14 cr)
*Technical electives selected from ME 304, 410, 412, 413, 414, 417, 420, 422, 427, 433, 443, 444, 451, 461, 463, 472, 473, 476, 481 (9 cr)

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in mechanical engineering must earn a grade of C or better in each specified lower-division course before registration is permitted in upper-division mechanical engineering courses. The specific lower-division courses are: Chem 111, Engr 105, 210, 220, and 240, Engl 102, Math 170, 175, 275, and 310, ME 123, 223, 261, and 262, Phys 211, 212, and 213. In addition, a grade higher than C must be earned in at least five of these courses. A grade of P (pass) in any of these courses is considered as a C grade in satisfying this certification requirement.

*With departmental approval, a graduate-level or special topics (ME 404) course may be used as a Technical Elective.

## Academic Minor Requirements

### MANUFACTURING ENGINEERING MINOR

This minor is not accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Bus 370 Production/Operations Management (3 cr)
Bus 439 Systems and Simulation or 456 Quality Management (3 cr)
Econ 202 Principles of Economics (3 cr)
ITED 250 Manufacturing Technology Systems (4 cr)
ME 304 Materials Selection and Processing for Mechanical Design (3 cr)
ME 409 Human Factors in Engineering Design or 481 Control Systems (3 cr)
ME 410 Production Engineering (3 cr)
ME 476 Automation, Robotics, and Computer Integrated Manufacturing (3 cr)

Only two ME classes listed above may be used to fulfill requirements for a manufacturing engineering minor AND mechanical engineering technical electives.

### MECHANICAL ENGINEERING MINOR

ME 123 Introduction to Mechanical Design (3 cr)
ME 223 Mechanical Design Analysis (3 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Courses selected from the following (including at least 6 cr from ME courses) (9 cr):
- ME 313 Dynamic Modeling of Engineering Systems
- ME 324 Dynamic Analysis in Machine Design
- ME 341 Intermediate Mechanics of Materials
- ME 345 Heat Transfer
- Engr 320 Engineering Thermodynamics and Heat Transfer
- Engr 335 Engineering Fluid Mechanics
- Engr 350 Engineering Mechanics of Materials

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Mechanical Engineering. Applicants for admission generally will have a B.S. degree in mechanical engineering. Those students admitted with degrees in other engineering fields will be expected to complete any undergraduate deficiencies. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** General M.S. requirements apply, along with departmental requirements as listed in the departmental graduate handbook.

**Master of Engineering.** Majors in mechanical engineering and systems engineering. General M.Engr. requirements apply, along with departmental requirements as listed in the departmental graduate handbook.

**Doctor of Philosophy.** General Ph.D. requirements apply, along with departmental requirements as listed in the departmental graduate handbook. Preliminary screening of candidates and program planning for those admitted are essential features of the Ph.D. program. Early in the program, the student must complete a qualifying examination, which will be oral and possibly written. The preliminary examination is taken after most of the course work is completed. This examination also includes a presentation of the dissertation progress or proposal. No foreign language is required; however, the department does require a satisfactory level of achievement in mathematics and numerical analyses and in computer programming.

**Certificate of Completion.** In addition to the above degree programs, the department now offers a certificate of completion in advanced materials design and in heating, ventilation, and air conditioning (HVAC) systems. A total of 13 credits is required to obtain each certificate. Students are not required to be actively pursuing a graduate degree in order to participate in a certification program. General graduate admission requirements apply, along with departmental requirements as listed in the departmental graduate handbook.

# Department of Microbiology, Molecular Biology and Biochemistry

**Gregory A. Bohach, Dept. Head (142 Life Sc. Bldg 83844-3052; phone 208/885-7966; mmbb@uidaho.edu; http://www.uidaho.edu/micro_biology).** ***Faculty:*** **Kenneth W. Bayles, Carolyn H. Bohach, Gregory A. Bohach, Allan B. Caplan, Zhixiang Chen, Douglas G. Cole, Donald L. Crawford, Ronald L. Crawford, Gary W. Daughdrill, Elizabeth Lee Fortunato, Patricia L. Hartzell, Richard C. Heimsch, Bruce L. Miller, Scott A. Minnich, Andrzej Paszczynski.** ***Adjunct Faculty:*** **Philip H. Berger, Alton G. Campbell, I. Francis Cheng, Guy R. Knudsen, Matthew Morra, Clifford F. Weil.** ***Affiliate Faculty:*** **William A. Apel, Debonny Barsky-Shoaf, Amy E. Bryant, Frederick S. Colwell, James K. Fredrickson, Rick L. Ornstein, Yong Ho Park, Francisco F. Roberto, Robert D. Rogers, Dennis L. Stevens, Daphne L. Stoner, William R. Trumble, Thomas Ward, James H. Wolfram.**

Microbiology is concerned with the study of microscopic forms of life, their distribution, importance, and role in such diverse areas as control and diagnosis of diseases, agricultural biotechnology, environmental and pollution control, and genetic engineering.

Molecular biology and biochemistry is the study of the molecular basis of life, the chemical, physical, and genetic properties of living things, their metabolic processes, and the new technologies for the genetic engineering of organisms.

The Department of Microbiology, Molecular Biology and Biochemistry offers the degrees of Bachelor of Science in Microbiology and Bachelor of Science in Molecular Biology and Biochemistry. The microbiology degree is offered in both the College of Agriculture and the College of Letters and Science while the degree in molecular biology and biochemistry is offered through the College of Agriculture. Students may choose to emphasize general microbiology or molecular biology and biochemistry by appropriate choices of courses. In addition, the department offers the degree of Bachelor of Science in Medical Technology for students who have earned the Bachelor of Science in Microbiology at UI and have completed medical technology training in an accredited hospital school. In each case, the curriculum emphasizes the need for a broad cultural base and specific training in biology, chemistry, mathematics, and physics, in addition to courses in the specialty area. Well-equipped laboratories are available and advanced students are encouraged to undertake research problems with the faculty. The department also provides courses for students who are majoring in other areas of the university and wish to obtain increased understanding of the sciences. Students are invited to inquire about academic minors in the department.

The Department of Microbiology, Molecular Biology and Biochemistry is a research and teaching unit within the College of Agriculture with extensive research expertise and instructional responsibilities in molecular biology, microbiology, and biochemistry. Scientists in the department are in the forefront of research with bacteria, fungi, and plants. The department has particular strengths in microbial physiology and ecology, developmental biology, membrane biochemistry, microbial pathogenesis and immunology, and plant molecular biology with a strong emphasis on the use of contemporary genetic engineering techniques.

Current research efforts designed to add to our scientific knowledge base include studies on the biochemistry and molecular biology of bacterial toxins including their effects on biomembranes, alteration of their immunological characteristics, and identification of active sites by site-directed mutagenesis; the isolation, characterization, and molecular cloning of unique enzymes capable of lignocellulose biodegradation from bacteria and fungi; the control of gene expression in a range of procaryotes and eucaryotes including molecular and biochemical basis of cell motility; the developmental control of sporulation genes in fungi, and pathogenesis determinants in bacteria; and microbial ecology with special emphasis on bacterial composition and metabolite cycling in surface films and carbon cycling in soil.

In addition to these basic research interests, faculty are involved in applying new knowledge to applied problems in biotechnology. Much of this work is in association with the University of Idaho's Environmental Biotechnology Institute (EBI), which coordinates environmental biotechnological research between university departments and encourages joint endeavors between diverse disciplines. Specific projects include the development of improved vaccines, the survival of genetically engineering organisms in the environment, the detection and control of bacteria and fungi that are pathogenic for humans, animals, and plants, biological control of weeds and phytopathogens, bacterial bioremediation of hazardous waste sites, the bioprocessing of chemicals and minerals to increase their economic value, e.g., coal to render it a liquid and ores to remove precious metals, and the improvement of bacterial detection systems for increased food safety.

This combination of basic and applied research, funded at the multi-million dollar level, provides a stimulating environment where graduate students can gain extensive research experience in all aspects of modern microbiology, biochemistry, and molecular biology. Students can select from a broad range of courses presenting the latest information in all areas of biochemical and microbial sciences. All members of the departmental faculty are actively involved in research and teaching programs that provide students with a broad perspective of important problems in modern biology.

Prospective students may call or write to the department (or e-mail mmbb@uidaho.edu) or individual faculty members for additional information concerning ongoing research activities and the availability of research assistantships.

In addition to the admission requirements of the Graduate College, prospective graduate students should have maintained an overall B average for all course work taken and have majored in an area of biological or chemical sciences. Results of the Graduate Record Examination (GRE) and three letters of recommendation are required. Students for whom English is a foreign language must have a TOEFL score of at least 580. Prior training should have included courses in general biology and chemistry, organic chemistry, biochemistry, calculus, physics, and introductory microbiology. Acceptance of students deficient in some of these areas will be

considered on an individual basis. In such cases, it will be expected that the deficiencies will be removed early during the graduate program.

## Courses

See part 6 for courses in Microbiology, Molecular Biology and Biochemistry (MMBB).

## Undergraduate Curricular Requirements

### MICROBIOLOGY (B.S.Microbiol. or B.S.)

The major in microbiology is offered through either the College of Agriculture (B.S.Microbiol.) or the College of Letters and Science (B.S.). The undergraduate curriculum in microbiology prepares students for interesting and challenging careers in biotechnology, public health, medical technology, and a broad spectrum of industry, government, and agricultural research laboratories. It is also an excellent curriculum for those intending to apply to an array of graduate programs in the biological sciences or professional programs in dentistry, medicine, or veterinary medicine.

Required course work includes the university requirements (see regulation J-3), the general requirements for the B.S. degree if applicable, and:

MMBB 250 General Microbiology (5 cr)
MMBB 380 Introductory Biochemistry (4 cr)
MMBB 400 Seminar (1 cr)
MMBB 440 Advanced Laboratory Techniques (4 cr)
At least two of the following microbiology electives (5-6 cr):
- MMBB 409 Immunology
- MMBB 412 Pathogenic Microbiology
- MMBB 414 General Virology
- MMBB 416 Food Microbiology
- MMBB 420 Epidemiology
- MMBB 425 Microbial Ecology
- MMBB 460 Microbial Physiology

At least one of the following microbiology electives (2-3 cr):
- MMBB 450 Molecular Mechanisms in Microbiology
- MMBB 485 Prokaryotic Molecular Biology
- MMBB 487 Eukaryotic Molecular Genetics

Biol 201 Introduction to the Life Sciences (4 cr)
Biol 351/Gene 314 General Genetics (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 113 Inorganic Chemistry and Qualitative Analysis (5 cr)
Chem 253 Quantitative Analysis (5 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Chem 372 Organic Chemistry II (3 cr)
Engl 317 Technical Writing or Engl 207 Persuasive Writing or Engl 208 Personal and Exploratory Writing or Engl 209 Inquiry-Based Writing (3 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geometry and Calculus I (4 cr)
Phys 111-112 General Physics I-II (8 cr)
Stat 251 Principles of Statistics (3 cr)
Humanities and social sciences electives (14 cr)
Science electives (6 cr)
Electives to total 128 cr for the degree

### MEDICAL TECHNOLOGY

The medical technologist performs critical laboratory tests and analytical procedures that aid physicians in the diagnosis and treatment of disease. The curriculum is of interest to students desiring professional careers in hospital and clinical laboratories, public health and research laboratories, and pharmaceutical laboratories.

Upon completion of the B.S. degree in microbiology (medical technology option), those students who successfully complete 32 credits (MMBB 421) in a 12-month training course at an accredited hospital school of medical technology with a curriculum including clinical bacteriology, medical mycology, parasitology, clinical chemistry, toxicology, urinalysis, hematology, immunology-serology, immunohematology, and clinical correlations will be awarded the B.S. degree with major in medical technology. This second degree option is open only to students who have earned the B.S. in microbiology at UI.

### MOLECULAR BIOLOGY AND BIOCHEMISTRY (B.S.M.B.B.)

The major in molecular biology and biochemistry is offered through the College of Agriculture. Molecular biology and biochemistry are two of the fastest growing research areas in modern biological sciences. Students training in this area will be prepared for a

number of technical professions in various aspects of biotechnology including laboratory positions in health, medicine, agriculture, and food processing industries. In addition, a B.S. degree in molecular biology and biochemistry is excellent preparation for further graduate and professional training in the biological and medical sciences.

Required course work includes the university requirements (see regulation J-3) and:

MMBB 250 General Microbiology (5 cr)
MMBB 380, 382 Introductory Biochemistry and Lab (6 cr)
MMBB 400 Seminar (1 cr)
MMBB 440 Advanced Laboratory Techniques (4 cr)
MMBB 480 Biochemistry and Molecular Biology (3 cr)
MMBB 488 Genetic Engineering (3 cr)
Biol 201/Gene 314 Intro to the Life Sciences (4 cr)
Biol 351 General Genetics (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 113 Inorganic Chemistry and Qualitative Analysis (5 cr)
Chem 253 Quantitative Analysis (5 cr)
Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Chem 302 Principles of Physical Chemistry (3 cr)
Chem 372, 376 Organic Chemistry II and Lab (5 cr)
Engl 317 Technical Writing or Engl 207 Persuasive Writing or Engl 208 Personal and Exploratory Writing or Engl 209 Inquiry-Based Writing (3 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geometry and Calculus I (4 cr)
Phys 111-112 General Physics I-II (8 cr)
Stat 251 Principles of Statistics (3 cr)
One of the following physiology electives (3-4 cr):
- MMBB 460 Microbial Physiology
- MMBB 475 Molecular Biology of Cells
- Bot 311 Plant Physiology

One of the following molecular biology and biochemistry electives (2-3 cr):
- MMBB 409 Immunology
- MMBB 412 Pathogenic Microbiology
- MMBB 450 Molecular Mechanisms in Microbiology
- MMBB 485 Prokaryotic Molecular Biology
- MMBB 486 Plant Biochemistry
- MMBB 487 Eukaryotic Molecular Genetics

Science electives (12 cr)
Electives to total 128 credits for the degree

*Note for double majors in molecular biology and biochemistry and in microbiology:* Elective courses used as required courses for one degree cannot be used as a science elective in the second degree.

## Academic Minor Requirements

### BIOCHEMISTRY MINOR

MMBB 380 Introductory Biochemistry (4 cr)
MMBB 480 Biochemistry and Molecular Biology (3 cr)
Courses selected from the following (12 cr):
- MMBB 382 Intro Biochem Lab or 484 Biochem Lab (2 cr)
- MMBB 400 Seminar (2 cr)
- MMBB 401 Undergrad Research (1-4 cr)
- MMBB 486 Plant Biochemistry (3 cr)
- Chem 302, 303 Principles of Physical Chemistry and Lab (or equiv) (4 cr)

### MICROBIOLOGY MINOR

MMBB 250 General Microbiology (5 cr)
MMBB 380 Introductory Biochemistry (4 cr)
Courses selected from the following (10 cr):
- MMBB 409 Immunology
- MMBB 412 Pathogenic Microbiology
- MMBB 416 Food Microbiology
- MMBB 425 Microbial Ecology
- MMBB 440 Advanced Laboratory Techniques
- MMBB 450 Molecular Mechanisms in Microbiology
- MMBB 460 Microbial Physiology
- MMBB 485 Prokaryotic Molecular Biology
- MMBB 487 Eukaryotic Molecular Genetics

MMBB 488 Genetic Engineering

### MOLECULAR BIOLOGY AND BIOCHEMISTRY MINOR

MMBB 380 Introductory Biochemistry (4 cr)
MMBB 480 Biochemistry and Molecular Biology (3 cr)
Courses selected from the following (12 cr):
- MMBB 382 Introductory Biochemistry Lab
- MMBB 486 Plant Biochemistry
- MMBB 488 Genetic Engineering
- Chem 302 Principles of Physical Chem or 305, 306 Physical Chem

Up to two of the following physiology courses (3-6 cr):
- MMBB 460 Microbial Physiology
- MMBB 475 Molecular Biology of Cells
- Biol 311 Plant Physiology

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Microbiology, Molecular Biology and Biochemistry. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Seamless Bachelor of Science/Master of Science.** The seamless B.S./M.S. degree program in microbiology, molecular biology and biochemistry enables qualified students to pursue the M.S. degree before completion of a B.S. degree in either microbiology or molecular biology/biochemistry. The classical B.S. degree from MMBB is typically completed by the fourth year of undergraduate training and will continue to be the route selected by most students. However, students accepted into the seamless program may work toward completion of both the B.S. and M.S. requirements during their fourth and fifth years or additional years if necessary. Successful students will receive both degrees upon completion of their studies. Provided that adequate academic and research progress is achieved, some students could complete the requirements for both the B.S. and M.S. in five years. Requirements for completion of the B.S. and M.S. degrees through the seamless program, and qualifications of graduates, are expected to be identical to those earning the degrees through the conventional path in which the two degrees are earned sequentially. Students interested in this program should discuss their options with their academic advisors. Identification of a graduate advisor plus formal application and acceptance to the MMBB graduate program and the College of Graduate Studies must be completed before the beginning of the fourth year. Once accepted, students must work toward completing the requirements for both degrees under the supervision of their graduate advisors and graduate committees in accordance with departmental and university guidelines. In regard to official standing within the university, students in the seamless program are classified as graduate students during their fourth and fifth years.

**Master of Science.** The M.S. degree may be earned in microbiology, molecular biology and biochemistry. An incoming student arranges a formal graduate program of at least 30 semester hours in consultation with his or her major professor and supervisory committee. The student is also expected to include MMBB 501 (seminar) each semester. One semester of teaching is required and is obtained through participation in the department's teaching programs. A master's candidate prepares a written thesis documenting completion of a laboratory research program. The thesis must be approved by the student's major professor and supervisory committee and be defended during an oral examination. Publication of data from the thesis in the peer-reviewed literature is expected.

**Doctor of Philosophy.** The Ph.D. degree may be earned in microbiology, molecular biology and biochemistry. A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and supervisory committee. The student is also expected to include MMBB 501 (seminar) each semester, with active participation in the form of one or more seminar presentations during the course of his or her graduate career. Two semesters of teaching experience is required and is obtained through participation in the department's teaching programs. A preliminary examination, usually oral, is required prior to admission to final candidacy for the degree. All candidates prepare a formal dissertation reflecting original thought and independent laboratory investigation and defend it during an oral presentation as a final step toward their degree. Publication of data from the dissertation in the peer-reviewed, scientific literature is expected.

# Department of Military Science

**Roger A. Arnzen, Dept. Head (West End, Mem. Gym. 83844-2424; phone 208/885-6528; armyrotc@uidaho.edu).** ***Faculty:*** **Roger A. Arnzen, Gerald K. Cornell, Daniel Frawley, Keith J. McVeigh, Kirk A. Mickelsen.**

Army ROTC, as represented at UI by the Department of Military Science, is the major source of commissioned officers for the U.S. Army. After successfully completing the program and baccalaureate degree requirements in almost any field, the student receives a commission as a second lieutenant. At this time active duty is not a requirement but is something for which students compete. Graduates also choose from among 26 different branches or specialties. Those not choosing active duty serve with the Army Reserves or Army National Guard on a part-time basis. Two- and three-year scholarships are available.

All levels of course work combine classroom instruction with practical exercises. The basic course, consisting of a one-credit course each freshman semester and a two-credit course each sophomore semester, is designed to provide men and women with information on opportunities as an officer in the Army on active duty or in the National Guard or Army Reserve. The two-year basic curriculum covers Army career opportunities, confidence building exercise, map reading, leadership, management principles, first aid, and other life skills with broad applications beyond the military. Students may voluntarily participate in one of several adventure activities (rappelling, rifle marksmanship, white water rafting, downhill skiing, etc.). Basic-course students, other than scholarship students, do not make a military commitment during this period. These students survey Army opportunities and decide whether to continue in the program as advanced-course students.

The advanced course consists of a three-credit course normally taken each semester during the last two years of university study and includes a five-week advanced camp at Fort Lewis, Washington (normally after the junior year). Students in the advanced course receive monthly stipends during the school year. Study centers on leadership styles and techniques with special emphasis placed on small-unit leadership.

The primary objective of the Army ROTC program is to develop leadership and management skills in students. Supplementary objectives include enhancement of the student's abilities in speaking and writing, goal seeking, and problem solving. Key to the program is the development of personal attributes essential to military service. Those attributes include sound situational assessment, decision making, and the ability to know, understand, and lead people. Additionally, the department hopes to cultivate within its students a strong sense of personal integrity, self-discipline, and responsibility.

Prior to commissioning, all cadets must demonstrate proficiency in communications, military history, and computer literacy. This may be achieved through taking UI course offerings in those subject areas. See your Army ROTC class advisor for a list of approved courses.

Departmental members will answer questions about specific programs and courses. Contact the department by going to the west end of Memorial Gymnasium or by calling 208/885-6528 or 1-88-88-UIDAHO, or by e-mail at armyrotc@uidaho.edu. Further information is available on the web, http://www.uidaho.edu/armyrotc.

## Courses

See Part 6 for courses in Military Science (MS).

# Lionel Hampton School of Music

**James L. Murphy, Director (205 Music Bldg. 83844-4015; phone 208/885-6231; e-mail music@uidaho.edu; www.uidaho.edu/LS/Music); Susan M. Hess, Assistant Director.** ***Faculty:*** **Carol Padgham Albrecht, Pamela Bathurst, Daniel J. Bukvich, J. Roger Cole, Robert Dickow, Mary H. DuPree, Mark E. Fisch, Alan J. Gemberling, Susan M. Hess, Natalie J. Kreutzer, Torrey E. Lawrence, J. Cameron Littlefield, G. Jay Mauchley, Sandra Mauchley, Robert T. McCurdy, James L. Murphy, James E. Reid, Michael D. Russell, Catherine M. Schulhauser, Merrie R Siegel, Lynn J. Skinner, William C. Wharton.**

The Lionel Hampton School of Music, so designated in 1987 in honor of the eminent American jazz musician, is an accredited institutional member of the National Association of Schools of Music. Established as a department in 1893, it was elevated to school status in 1969.

The courses and curricula in music seek to prepare elementary, secondary, and college teachers of music; to train professional musicians; to enrich the cultural environment for students and provide liberal-arts instruction; and to engage in research in music performance and teaching for the general benefit of the public and the discipline of music.

Students in this school learn by performing, listening, analyzing, and creating music. Emphasis is on the understanding of musical styles and techniques of all eras, including contemporary music. Musical studies balance the aesthetic and the practical, with ample opportunity for exploration and self-reliance.

The formal undergraduate curricula of the School of Music consist of degree programs in the following areas:

Bachelor of Music in Performance
- Specialization in voice, piano, guitar, or any orchestral instrument.

Bachelor of Music in Composition

Bachelor of Music in Music Education
- Specialization in vocal music education, instrumental music education, or a combined program in vocal and instrumental music education.

Bachelor of Music in Business
- Specialization in performance or composition combined with studies in accounting, economics, statistics, management, and marketing.

Bachelor of Arts in Music
- Emphasis in music theory, music history, or applied music. Applied music study can be in any of the areas of specialty listed under the Bachelor of Music in Performance.

Bachelor of Science in Music
- Emphasis in music theory, music history, or applied music. Applied music study can be in any of the areas of specialty listed under the Bachelor of Music in Performance.

The B.Mus. degree is professionally oriented, and is the normal preparation for graduate study in music or for teacher education. The B.A. and B.S. degrees emphasize a broad liberal-arts education. Acceptance to the B.Mus., B.A., and B.S. degree programs requires an audition. The School of Music also offers a minor in music and participates in the university core curriculum by offering the course "Survey of Music." The ensembles and performing groups sponsored by the School of Music are open to all students, regardless of major.

The Music Building houses the Agnes Crawford Schuldt Music Library, faculty studios, ensemble rehearsal areas, classrooms, a music education materials center, a listening center, and a recital hall. Individual practice rooms are available in nearby Ridenbaugh Hall. Recording, radio-television, language listening lab, and computer facilities of the campus are also used by music students. In addition to organ, harpsichord, harp, and piano practice instruments, the school maintains two performance pipe organs, three concert grand pianos, and a concert harpsichord.

The Hampton School offers degrees at the master's level; Master of Music degrees are available in music education, performance (vocal and instrumental), composition, accompanying, and piano pedagogy and performance studies. The Master of Arts option is in music history. Acceptance into the M.Mus. degree programs require an audition.

The school offers prospective graduate students a wide range of individual and group instruction opportunities as preparation for professional careers in music either as performers, composers, scholars, or music educators. Study is enriched through participation in recitals in addition to participation in both small and large vocal and instrumental ensembles.

Admission to the M.A. or M.Mus. program in this school normally requires a baccalaureate degree in music from an accredited institution. Each student must take diagnostic placement examinations in music history and theory at the time of first registration as a graduate student. Those interested in pursuing the degree pattern in music education must also take an exam in music education. During the first semester of enrollment, a supervisory committee and a chair of that committee will be appointed.

While the primary emphasis of graduate work is concerned with subject matter areas, the importance of performance is not neglected. Students are encouraged, and in some cases required, to participate in one organized ensemble each academic session in residence.

# Courses

See part 6 for courses in Applied Performance Studies (MusA), Theory and Composition (MusC), History and Literature (MusH), Music Teaching (MusT), General (MusX).

# Undergraduate Curricular Requirements

## General Requirements for all B.A., B.S., and B.Mus. Degrees

**Minimum Grade Requirement.** A music student, either major or minor, must achieve a minimum grade of C in each music course, either resident or transfer, which is applicable to a degree program in music before the student will be eligible for graduation.

**MusH 101 and 111.** Music majors may NOT use MusH 111 to satisfy UI core curriculum requirements. MusH 111 is part of the professional course work--12 credits in music history--required for the major.

If a music major takes MusH 101, he or she must have 14 credits of courses other than MusH 101 in order to satisfy the humanities/social sciences core requirement.

If a transfer student has taken a 100-level survey of music course prior to enrollment as a music major in the School of Music, the student may use this course in lieu of MusH 111. If world music was not addressed in the transfer course, students will have to meet a level of competency in world music.

**Ensemble Participation.** An undergraduate music major must: (1) earn a minimum of eight credits in ensemble participation to be eligible for graduation and (2) enroll in an ensemble during each semester of full-time study. Various requirements are contained in the specific curricula. For curricular purposes, "large ensemble" is defined to mean MusA 116/316, 117/317, 119/319, 121/321, 122/322, or 320. Other ensembles (listed in some curricula under "Chamber Music") consist of MusA 118/318, 315, 323, 365, and 380. For students in the B.A. or B.S. in Applied Music or the B.Mus. in Music: Business, the following minimum requirements apply depending on the primary applied area of the student:

**Orchestral Instrument:** six credits in instrumental large ensemble and two additional credits in any instrumental ensemble.

**Voice:** six credits in vocal large ensemble and two additional credits in any vocal ensemble.

**Keyboard:** two credits in any large ensemble, four credits in MusA 315, and two credits in MusA 365.

**Guitar:** four credits in any large ensemble and four credits in MusA 365-02 Chamber Ensemble: Guitar Ensemble.

Transfer students must have a minimum of four semesters of ensemble participation at UI, at least two of which must be in a large ensemble.

**Keyboard Proficiency.** Minimum keyboard proficiency for all music majors, including transfer students, is met by passing a keyboard proficiency examination. The keyboard proficiency exam must be completed by music majors prior to enrollment in MusA 114, Individual Instruction: Piano.

**Convocation-Recital Attendance.** Because listening experiences constitute an area of major importance in the study of music, all music majors and music minors are required to register for MusX 140, Convocation; music majors must attend 10 recitals per semester for seven semesters and music minors must attend 10 recitals per semester for two semesters. Students must attend a full concert or program in order for it to be counted toward convocation-recital requirements. Recital credit will not be granted for those performances in which a student participates. In addition, music majors must attend the weekly convocation series (studio class, area recital, and convocation). Transfer students are expected to enroll in MusX 140 during their first registration, and to receive a passing grade in a specific number of semesters (to be determined when the student's program is set up). Transfer students must have a minimum of two semesters of convocation at UI.

**Upper-Division Standing (UDS).** For an undergraduate music major to enroll in MusA 324 or 334, or for a composition major to enroll in MusC 325, the student must have been granted upper-division standing (UDS). Except for double majors where one major is not in music, students applying for UDS must: (1) have completed three semesters of music theory (MusC141/142/241), Aural Skills (MusC 139/140/239), one semester of music history (MusH 111), and three semesters of Piano Class (MusA 145/146/245), all with a grade of “C” or better; (2) have passed with a grade of “C” or better or be currently enrolled in Theory IV (MusC 242), Aural Skills IV (MusC 240), and Piano Class IV (MusA 246); and (3) have passed a special jury examination demonstrating the of mastery of the fundamentals of the student's major area of performance/composition and the potential to continue improving in a manner that will lead to the successful completion of performance/composition requirements of the degree and major emphasis (the jury examination requirement must be met, regardless of double majors, before a student can enroll in MusA 324, 334, or MusC 325). Students who fail to pass the UDS requirements within three tries will be asked to leave the program.

In order to register for upper-division music education courses (not including instrumental techniques courses), an undergraduate music education major must: (1) make application to upper-division music education courses by completing and submitting an application form (available in the music office) to the chair of the Music Education Committee--this should be done in the semester in which the student is enrolled in ED 201; (2) successfully complete ED 201 and the necessary core courses to meet the requirements

of the application to Teacher Education in the College of Education; (3) obtain a "C" or better in music courses and at least a 2.5 overall GPA; and (4) pass the individual instruction upper-division standing jury.

**Diagnostic Exam in Theory and Aural Skills.** The goal of this exam is to advise students regarding deficiencies in their prior theory training; this exam is not available to freshmen. A study guide is available in the music office and on the web. The exam is given during the first week of classes each semester, as needed. It is in four parts, one covering each semester of the theory/aural skills sequence. The exam will not be used for "advanced placement" or "credit by examination," as the regulations regarding these procedures are covered in regulation D-4 in Part 3. Written evaluation of each student's achievement will be placed in his or her advising file, and the student will be counseled appropriately.

**Transfer Credits.** Transfer credits will be accepted at the upper-division level only if taken at the upper-division level from the original institution (i.e., a 100- or 200-level course will not transfer as a 300- or 400-level course requirement). The applicability of these credits to the student's program of study is determined by the Lionel Hampton School of Music.

## MUSIC: APPLIED MUSIC (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the L&S requirements for the B.A. or B.S. degree, and:

MusA 124 Individual Instruction (major instrument or voice) (8 cr)
MusA 324 Individual Instruction (major instrument or voice) (8 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 490 Half Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusA ensembles (in eight different semesters) (see "Ensemble Participation" above for specific requirements) (8 cr)
Electives to total 128 cr for the degree (incl at least 73 cr in nonmusic courses)

Students may also complete an optional Emphasis in Jazz Performance by completing the following course work (12 cr):
- MusC 329 Theoretical Basis of Jazz (2 cr)
- MusH 410 Studies in Jazz History (3 cr)
- MusA 210 Jazz Improvisation (2 cr)
- Electives in ensembles, combos, or applied study (5 cr)

## MUSIC: HISTORY AND LITERATURE (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the L&S requirements for the B.A. or B.S. degree, and:

MusA 114 Individual Instruction (4 cr)
MusA 314 Individual Instruction (one instrument/voice) (4 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
Upper-division MusH electives (6 cr)
Upper-division MusC elective (2 cr)
MusA ensembles (in eight different semesters) (8 cr)
Electives to total 128 cr for the degree (incl a least 73 cr in nonmusic courses)

Students may also complete an optional Emphasis in Jazz History by completing the following course work (12 cr):
- MusC 329 Theoretical Basis of Jazz (2 cr)
- MusH 410 Studies in Jazz History (3 cr)
- MusA 210 Jazz Improvisation (2 cr)
- MusH J440/J540 Studies in American Music (3 cr)
- Electives in history, ensembles, combos, or applied study (2 cr)

## MUSIC: THEORY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the L&S requirements for the B.A. or B.S. degree, and:

MusA 114 Individual Instruction (4 cr)

MusA 314 Individual Instruction (one instrument/voice) (4 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
Upper-division MusC electives (8 cr)
MusA ensembles (in eight different semesters) (8 cr)
Electives to total 128 cr for the degree (incl at least 73 cr in nonmusic courses)

## MUSIC: INSTRUMENTAL PERFORMANCE (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and the specific requirements in one of the two sections below. It is strongly recommended and in some cases required that instrumentalists elect pedagogy courses appropriate to their major fields.

### A. KEYBOARD

MusA 134 Individual Instruction (12 cr)
MusA 334 Individual Instruction (12 cr)
MusA 246 Piano Class (1 cr)
MusA 315 Accompanying (4 cr)
MusA 365 Chamber Ensemble (2 cr)
MusA 387 Conducting I (2 cr)
MusA 455 Keyboard Performance Practices (1 cr)
MusA 490 Half Recital (0 cr)
MusA 491 Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 331 Counterpoint (3 cr)
MusC 442 Musical Analysis (2 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusH 454 Keyboard Repertoire I (2 cr)
MusH 455 Keyboard Repertoire II (2 cr)
MusT 436 Pedagogy and Materials: Keyboard I (2 cr)
MusT 437 Pedagogy and Materials: Keyboard II (2 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusH elective at the 400-level (3 cr)
Large ensemble (two different semesters chosen from MusA 116, 117, 119, 121, 122, 316, 317, 319, 320, 321, 322) (2 cr)
Music electives to complete 84 cr in music (4 cr)
Electives to total 128 cr for the degree

### B. ORCHESTRAL INSTRUMENTS OR GUITAR

Note: MusT 435, Pedagogy and Materials: Guitar (2 cr), is required of guitar majors.

MusA 134 Individual Instruction (12 cr)
MusA 334 Individual Instruction (12 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 387 Conducting I (2 cr)
MusA 490 Half Recital (0 cr)
MusA 491 Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 331 Counterpoint (3 cr)
MusC 442 Musical Analysis (2 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusH 451 Repertoire (2 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusH elective at the 400-level (3 cr)
Large ensemble (eight different semesters chosen from MusA 121, 122, 320, 321, 322) (4 cr in four different semesters reqd for guitar majors, who may also choose from MusA 116, 117, 119, 316, 317, 319) (8 cr)
Chamber music (two different semesters chosen from MusA 323, 365) (4 cr in four different semesters of MusA 365: Guitar Ensemble, reqd for guitar majors) (2 cr)
Music electives to complete 84 cr in music (4-6 cr)

Electives to total 128 cr for the degree

Students may also complete an optional Emphasis in Jazz Performance by completing the following course work (15 cr):
MusC 329 Theoretical Basis of Jazz (2 cr)
MusH 410 Studies in Jazz History (3 cr)
MusA 210 Jazz Improvisation (2 cr)
Electives in ensembles, combos, or applied study (8 cr)

## MUSIC: VOCAL PERFORMANCE (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and:

MusA 134 Individual Instruction (12 cr)
MusA 334 Individual Instruction (12 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 380 Opera Workshop (two different semesters) (2 cr)
MusA 387 Conducting I (2 cr)
MusA 490 Half Recital (0 cr)
MusA 491 Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 331 Counterpoint (3 cr)
MusC 442 Musical Analysis (2 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusH 452 Vocal Repertoire I (2 cr)
MusH 453 Vocal Repertoire II (2 cr)
MusT 435 Pedagogy and Materials: Voice (2 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusX 283-284 Diction for Singers (4 cr)
Foreign language (two years of one language or one year each of two languages) (16 cr)
Large ensemble (eight different semesters chosen from MusA 116, 117, 316, 317) (8 cr)
Music electives to complete 84 cr in music (1 cr)
Electives to total 128 cr for the degree

## MUSIC: COMPOSITION (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and:

MusA 114 Individual Instruction (if major performing medium is other than piano, piano is suggested for the minor area) (2 cr)
MusA 124 Individual Instruction (8 cr)
MusA 324 Individual Instruction (4 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 387 Conducting I (2 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 260 Introduction to Composition (1 cr)
MusC 325 Composition (4 cr)
MusC 328 Instrumental and Choral Arranging (3 cr)
MusC 331 Counterpoint (3 cr)
MusC 425 Advanced Composition (4 cr)
MusC 426 Electronic Music (2 cr)
MusC 442 Musical Analysis (2 cr)
MusC 490 Half Recital (0 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusH elective at the 400-level (3 cr)
Large ensemble (eight different semesters chosen from MusA 116, 117, 119, 121, 122, 316, 317, 319, 320, 321, 322) (8 cr)
Chamber music (two different semesters chosen from MusA 118, 318, 323, 365) (one semester of MusA 315, Accompanying, is reqd of students whose major applied medium is keyboard) (2 cr)
Music electives to complete 84 cr in music (4 cr)
Electives to total 128 cr for the degree

Students may also complete an optional Emphasis in Jazz Composition/Arranging by completing the following course work (15 cr):
MusC 329 Theoretical Basis of Jazz (2 cr)
MusH 410 Studies in Jazz History (3 cr)
MusA 210 Jazz Improvisation (2 cr)
MusC 204 Special Topics: Jazz Arranging (2 cr)

Electives in composition, arranging, ensembles, or combos (6 cr)

## MUSIC: BUSINESS (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and:

MusA 124 Individual Instruction (8 cr)
MusA 324 Individual Instruction (8 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 387 Conducting I (2 cr)
MusA 490 Half Recital (0 cr)
MusA ensemble (in eight different semesters) (see "Ensemble Participation" above for specific requirements) (8 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC elective at the 300 or 400 level (2-3 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusH elective at the 400 level (2-3 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
Music electives (to total 64 credits in music) (0-2 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Acct 202 Introduction to Managerial Accounting (3 cr)
Bus 301 Financial Management (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 321 Marketing (3 cr)
Two of the following courses (6 cr):
- BLaw 265 Legal Environment of Business
- Bus 324 Buyer Behavior
- Bus 412 Human Resource Management
- Bus 413 Organizational Behavior
- Bus 425 Retail Distribution Management
- Bus 427 Services Marketing

Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201-202 Principles of Economics (6 cr)
Stat 251 Principles of Statistics (3 cr)

Note: Students who wish to emphasize composition must: (1) substitute four credits of MusC 325, Composition, for four credits of MusA 324; (2) take four credits of MusC 425, Advanced Composition, as their upper-division theory elective, and (3) substitute MusC 490, Recital, for MusA 490, Half Recital.

## MUSIC EDUCATION: VOCAL (B.Mus.)

NOTE: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of Part 4.

Required course work includes the university requirements (see regulation J-3) and the specific requirements in one of the two sections below:

**A. VOICE**

MusA 114 Individual Instruction: Piano (4 cr)*****
MusA 124 Individual Instruction: Voice (8 cr)
MusA 324 Individual Instruction: Voice (6 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 151 or 152 Guitar Class for Music Majors (1 cr)
MusA 380 Opera Workshop (1 cr)
MusA 387, 487 Conducting I, II (4 cr)
MusA 490 Half Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 328 Instrumental and Choral Arranging (3 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusT 382 Elementary School Music Methods for Music Majors (3 cr)
MusT 383 Principles of Music Teaching (3 cr)
MusT 385 Choral Music in the Secondary School (2 cr)
MusT 432 Practicum: Music Teaching (14 cr)
MusT 435 Pedagogy and Materials: Voice (2 cr)
MusT 445 Proseminar in Music Teaching (2 cr)

MusT 485 Choral Ensemble Rehearsal Techniques (1 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusX 283-284 Diction for Singers (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
Large ensemble (six different semesters chosen from MusA 116, 117, 316, 317) (6 cr)
Other ensemble (one semester chosen from MusA 116, 117, 118, 316, 317, 318, 365, 380) (1 cr)

***** Voice majors must register for piano class before enrolling in applied piano instruction.

**B. KEYBOARD**

MusA 147-148 Voice Class (2 cr)
MusA 114 Individual Instruction: Voice (4 cr)*****
MusA 124 Individual Instruction: Piano (8 cr)
MusA 324 Individual Instruction: Piano (6 cr)
MusA 246 Piano Class (1 cr)
MusA 151 or 152 Guitar Class for Music Majors (1 cr)
MusA 315 Accompanying (2 cr)
MusA 380 Opera Workshop (1 cr)
MusA 387, 487 Conducting I, II (4 cr)
MusA 490 Half Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 328 Instrumental and Choral Arranging (3 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusT 382 Elementary School Music Methods for Music Majors (3 cr)
MusT 383 Principles of Music Teaching (3 cr)
MusT 385 Choral Music in the Secondary School (2 cr)
MusT 432 Practicum: Music Teaching (14 cr)
MusT 435 Pedagogy and Materials: Voice (2 cr)
MusT 445 Proseminar in Music Teaching (2 cr)
MusT 485 Choral Ensemble Rehearsal Techniques (1 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
MusX 283-284 Diction for Singers (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
Large ensemble (six different semesters chosen from MusA 116, 117, 316, 317) (6 cr)
Other ensemble (one semester chosen from MusA 116, 117, 118, 316, 317, 318, 365, 380) (1 cr)

***** Keyboard majors must register for voice class before enrolling in applied voice instruction.

## MUSIC EDUCATION: INSTRUMENTAL (B.Mus.)

NOTE: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of Part 4.

Required course work includes the university requirements (see regulation J-3) and:

MusA 124 Individual Instruction (8 cr)
MusA 324 Individual Instruction (6 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 387, 487 Conducting I, II (4 cr)
MusA 490 Half Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 328 Instrumental and Choral Arranging (3 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)

MusT 251, 253, 254, 255, 352 Instrumental Techniques (5 cr)
MusT 382 Elementary School Music Methods for Music Majors (3 cr)
MusT 383 Principles of Music Teaching (3 cr)
MusT 386 Instrumental Music in the Secondary School (2 cr)
MusT 432 Practicum: Music Teaching (14 cr)
MusT 445 Proseminar in Music Teaching (2 cr)
MusT 465 Jazz Band Rehearsal Techniques (1 cr)
MusT 466 Marching Band Techniques (1 cr)
MusT 467 Instrumental Literature for Public Schools (1 cr)
MusT 486 Instrumental Ensemble Rehearsal Techniques (1 cr)
MusX 101 Orientation for Music Majors (0 cr)
MusX 140 Convocation (seven semesters) (0 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
Large ensembles (six different semesters) ( 6 cr)*****
Other ensembles (two different semesters chosen from MusA 119, 121, 122, 319, 320, 321, 322, 323, 365) (students whose major applied medium is keyboard must select MusA 315 to satisfy this requirement) (2 cr)
Electives to total 128 cr for the degree

Students may also complete an optional Emphasis in Jazz Education by completing the following course work (15 cr):
MusC 329 Theoretical Basis of Jazz (2 cr)
MusH 410 Studies in Jazz History (3 cr)
MusA 210 Jazz Improvisation (2 cr)
MusC 204 Special Topics: Jazz Arranging (2 cr)
MusT 465 Jazz Band Rehearsal Techniques (1 cr)
Electives in ensembles, combos, or applied study (5 cr)

***** The large ensemble requirement must be completed in six different semesters; **wind and percussion majors** must register for three different semesters of MusA 119 or 319 and three different semesters of MusA 121, 320, or 321. **Wind and percussion majors** may, by audition, substitute two semesters of MusA 122 or 322 for 320 or 321. **String majors** must register for six different semesters of MusA 122 or 322 and one semester of MusA 119 or 319. **Keyboard majors** must enroll in one semester of MusA 119 or 319. They may enroll in large vocal ensembles to satisfy the remaining large ensemble requirements. **Wind, percussion, keyboard, and string majors** must have a total of four semesters of large ensemble participation (as defined above) at UI.

## MUSIC EDUCATION: VOCAL-INSTRUMENTAL (B.Mus.)

NOTE: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a GPA of 2.75. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of part four of this catalog.

Required course work includes the university requirements (see regulation J-3) and:

MusA 114 Individual Instruction (voice) (2 cr)
MusA 124 Individual Instruction (8 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 147-148 Voice Class (2 cr)
MusA 324 Individual Instruction (6 cr)
MusA 387, 487 Conducting I, II (4 cr)
MusA 490 Half Recital (0 cr)
MusC 139-140, 239-240 Aural Skills (6 cr)
MusC 141-142, 241-242 Theory of Music (10 cr)
MusC 328 Instrumental and Choral Arranging (3 cr)
MusH 111 Introduction to Music Literature (3 cr)
MusH 321, 322, 323 Music in Western Civilization (9 cr)
MusT 251, 253, 254, 255, 352 Instrumental Techniques (5 cr)
MusT 382 Elementary School Music Methods for Music Majors (3 cr)
MusT 383 Principles of Music Teaching (3 cr)
MusT 385 Choral Music in the Secondary School (2 cr)
MusT 386 Instrumental Music in the Secondary School (2 cr)
MusT 432 Practicum: Music Teaching (14 cr)
MusT 445 Proseminar in Music Teaching (2 cr)
MusT 465 Jazz Band Rehearsal Techniques (1 cr)
MusT 466 Marching Band Techniques (1 cr)
MusT 467 Instrumental Literature for Public Schools (1 cr)
MusT 485 Choral Ensemble Rehearsal Techniques (1 cr)
MusT 486 Instrumental Ensemble Rehearsal Techniques (1 cr)
MusX 101 Orientation for Music Majors (0 cr)

MusX 140 Convocation (seven semesters) (0 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
ED 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
ED 301 Principles of Learning and Development in Education (3 cr)
ED 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
EDTE 463 Literacy Methods for Content Learning (3 cr)
Psyc 101 Introduction to Psychology (3 cr)
Large ensembles (six different semesters)* (6 cr)
Large ensembles (two different semesters chosen from MusA 116, 117, 316, 317) (2 cr)
Other ensembles (two different semesters chosen from MusA 119, 121, 122, 319, 320, 321, 322, 323, 365) (students whose major applied medium is keyboard must select MusA 315 to satisfy this requirement) (2 cr)
Electives to total 128 cr for the degree

*The large ensemble requirement must be completed in six different semesters; **wind and percussion majors** must register for three different semesters of MusA 119 or 319 and three different semesters of MusA 121, 320, or 321. **Wind and percussion majors** may, by audition, substitute two semesters of MusA 322 for 320 or 321**. String majors** must register for six different semesters of MusA 122 or 322. **Keyboard majors** must enroll in one semester of MusA 119 or 319. They may enroll in large vocal ensembles to satisfy the remaining large ensemble requirements. **Wind, percussion, and string majors** must have a total of four semesters of large ensemble participation (as defined above) at UI.

## Academic Minor Requirements

### MUSIC MINOR

Note: Ensemble participation is recommended to meet the music electives requirement.

MusA 114 Individual Instruction (4 cr)
MusA 145-146 Piano Class (2 cr)
MusC 139-140 Aural Skills I-II (4 cr)
MusC 141-142 Theory of Music I-II (4 cr)
MusH 101 Survey of Music or MusH 111 Introduction to Music Literature (3 cr)
Select two courses from MusH 321, 322, 323 Music in Western Civilization (6 cr)
MusX 140 Convocation (2 semesters) (0 cr)
Music electives (4 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the School of Music. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Arts.** General M.A. requirements apply. Applicants for the M.A. degree may concentrate in music history. A reading competency in one foreign language is required. Admission to the program is by permission of the music history faculty.

**Master of Music.** Applicants for the M.Mus. degree may concentrate in music education; performance (with degree patterns in keyboard, woodwinds, brass, percussion, strings, and voice); composition; piano pedagogy and performance studies; or accompanying. Admission to the M.Mus. program is by audition, interview, and/or submission of scores and tapes depending on the concentration selected. At least 18 semester hours of credit applicable toward the M.Mus. degree must be earned in residence on the Moscow campus.

# Natural Resources

**Leonard R. Johnson, Interim Dean, College of Natural Resources (202C CNR Bldg. 83844-1138; phone 208/885-2397); Alton G. Campbell, Associate Dean.**

With approximately 90 percent of its area in forest and range lands, together with its wealth of water resources, Idaho offers excellent opportunities for undergraduate and graduate study in all the disciplines related to management of renewable resources of wildlands. The college has its own research organization, the Forest, Wildlife and Range Experiment Station, including the Idaho Cooperative Fish and Wildlife Research Unit and the Cooperative Park Studies Unit. All faculty members have teaching responsibilities in the college as well as research responsibilities in the experiment station. Additional facilities include the Wilderness Research Center with a field station in the River of No Return Wilderness Area, the Experimental Forest near Moscow, the Lee A. Sharp Experimental Area near Burley, Idaho, the McCall Field Campus in central Idaho, the Clark Fork Field Campus in northern Idaho, and the USDA Rocky Mountain Research Station, Forestry Sciences Laboratory, in Moscow.

Admission for graduate study normally requires completion of course work equivalent to that required in one of the undergraduate curricula offered by the college. Students with differing backgrounds but substantial preparation in the sciences may also be admitted. The study plans developed will allow for differences in preparation while providing all students with comparable backgrounds by the time the graduate program is completed.

## Courses

See Part 6 for courses in Natural Resources (NR).

## Undergraduate Curricular Requirements

### NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

Improving global environmental conditions requires researchers and other citizens who can understand ecological principles, who can analyze and interpret ecological conditions, and who predict the consequences of alternative natural resource management decisions. Understanding the importance of social values and policy for ecology and management of rare, threatened, and endangered species and their habitat is necessary to reverse the order of their decline. In the natural resources ecology and conservation biology program, students learn to apply biological, ecological, social, and political understanding to solve problems related to long-term conservation of biological diversity and to sustainable management of ecosystems.

This degree combines the biological, ecological, and social sciences to provide (1) an interdisciplinary understanding of the composition, structure, and processes of ecosystems, and (2) the skills necessary to provide long-term planning for the conservation and sustainable management of populations, species, and ecosystems.

Students will examine topics from molecular to landscape scales, and integrate the social and biophysical worlds. Graduates will be equipped to address the issues and problems of sustainable resource use, conservation of rare, threatened, or endangered biota, management of ecosystems, and long-term conservation of biological diversity. This program is flexible enough to adapt to the interests of individual students, while remaining firmly grounded in ecological principles applicable to species, populations, communities, landscapes, and ecosystems. It is distinctly different from the emphasis on management in the other forestry, wildlife, fisheries, range, and resource recreation and tourism programs, or the more general environmental science programs. Graduates of the program often continue advanced studies at national and international universities. This natural resources "liberal science" degree can also serve as pre-professional training for law school, or for professional positions in federal, state, and private environmental organizations including local and regional planning groups and consulting firms.

The program requires 128 credits, and students must choose either the natural resources ecology or conservation biology option. To register for upper-division courses in Fish/For/Rnge/RRT/WLF, students must have a "C" or better in each of the following indicator courses: Biol 112 and 213, Stat 251, and For/Rnge 221.

Required course work includes the university requirements (see regulation J-3) and:

Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 341 Systematic Botany or For 320 Dendrology or Rnge 353 Rangeland Plant Identification and Ecology (3 cr)
Chem 101 Introduction to Chemistry I or 111 Principles of Chemistry I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Economics (3 cr)
Engl 317 Technical Writing (3 cr)

Fish/For/RRT/WLF 302 Wildland Field Ecology (2 cr)
Fish/For/ForP/Rnge/RRT/WLF 497 Senior Thesis or Fish/For/ForP/Rnge/RRT/WLF 485 Natural Resources Ecology and Conservation Biology Internship (2 cr)
For/Rnge 221 Natural Resources Ecology (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
For 383 Economics for Natural Resource Managers (3 cr)
For 470 Interdisciplinary Natural Resource Planning (3 cr)For 480 Senior Project Planning (1 cr)
For 481 Senior Project Presentation (1 cr)
Math 160 Survey of Calculus or 170 Analytic Geometry and Calculus I (4 cr)
Phil 103 Ethics (3 cr)
Phys 100 Fundamentals of Physics (4 cr)
Stat 251 Principles of Statistics (3 cr)

And one of the following options:

**A. NATURAL RESOURCES ECOLOGY OPTION**

The natural resources ecology option combines ecological theory, field experience, and quantitative tools to gain an interdisciplinary understanding of the structure and function of ecosystems. This field covers ecological topics from local, regional, and landscape scales while integrating the social and biophysical worlds.

To graduate in this option, students must achieve a "C" or better in the following seven core courses: Fish/For/Rnge/RRT/WLF 200, For 330, For 394, For 429, Rnge 459, Soil 205/206, and WLF 448.

Fish/For/Rnge/RRT/WLF 200 Seminar (1 cr)
For 330 Forest Ecosystem Processes (3 cr)
For 394 Quantitative Resource Analysis (3 cr)
For 429 Landscape Ecology of Forests and Rangelands (2 cr)
Rnge 459 Rangeland Ecology (3 cr)
Soil 205/206 General Soils and Lab (4 cr)
Wlf 316 Wildlife Ecology II (4 cr) or Fish 316 Principles of Population Dynamics (2 cr)
Quantitative Resource Analysis Restricted Electives (two courses from the following) (5-6 cr)
- For 375 Airphoto Interpretation and Mapping (3 cr)
- For 472 Remote Sensing of Environment (3 cr)
- For 476 Forestry Project Evaluation (3 cr)
- For 477 Integrated Forest Management Models (3 cr)
- Geog 385 GIS Primer (3 cr)
- Math 437 Mathematical Biology (3 cr)
- Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
- Stat 401 Statistical Analysis (3 cr)
- Stat 422 Sample Survey Methods (2 cr)
- Stat/GeoE 428 Geostatistics (3 cr)
- Wlf 448 Fish & Wildlife Population Ecology (4 cr.)

Resource Management Restricted Electives (two courses from the following) (4-8 cr)
- Fish 418 Fisheries Management (4 cr)
- For 424 Silviculture II (2 cr)
- For 462 Watershed Management (2 cr)
- Rnge 354 Wildland Vegetation Management and Restoration (3 cr)
- Rnge 454 Rangeland Weed Management (3 cr.)
- Rnge 456 Integrated Rangeland Management (3 cr)
- RRT 385 Resource Recreation and Tourism Management (3 cr)
- RRT 484 Management of Recreation Sites and Leisure Settings (2 cr)
- RRT 490 Wilderness Management (3 cr)
- RRT 496 Monitoring Human Impacts in Wilderness (3 cr)
- WLF 445 Nongame Management (2 cr)
- WLF 492 Wildlife Management (4 cr)

Ecology restricted electives (four courses from the following) (9-13 cr):
- Biol 421 Advanced Evolution/Population Dynamics (3 cr)
- Biol 478 Animal Behavior (3 cr)
- Ent 472 Aquatic Entomology (3 cr)
- Fish 314 Fish Ecology (3 cr)
- Fish 415 Limnology (4 cr)
- Fish/Rnge 430 Riparian Ecology and Management (2 cr)
- For 423 Forest Community Ecology (1 cr)
- For 426 Wildland Fire Management and Ecology (3 cr)
- For 466 Diseases and Insects of Woody Plants (3 cr)
- MMBB 425 Microbial Ecology (3 cr)
- PlSc 410 Biology of Weeds (3 cr)
- Rnge 440 Wildland Restoration Ecology (3 cr)
- WLF 314 Wildlife Ecology I (3 cr)
- WLF 440 Conservation Biology (3 cr)
- WLF 441 Behavioral Ecology (3 cr)

Social/political restricted electives (two courses from the following) (5-6 cr):
- AgEc 356 Agricultural Programs and Policies (3 cr)
- Comm 331 Conflict Management (3 cr)
- Econ 385 Environmental Economics (3 cr)
- For 484 Forest Policy and Administration (2 cr)
- Geog 420 Land, Resources, and Environment (3 cr)
- Geog 444 Environmental Assessment (3 cr)
- Hist 424 American Environmental History (3 cr)
- Phil 452 Environmental Philosophy (3 cr)
- PolS 464 Politics of the Environment (3 cr)
- RRT 486 Public Involvement in Natural Resource Management (3 cr)
- RRT 489 Personalities and Philosophies in Conservation (2 cr)
- RRT 493 International Land Preservation and Conservation Systems (3 cr)

Electives to total 128 credits for the degree

**B. CONSERVATION BIOLOGY OPTION**

The conservation biology option is centered around a multidisciplinary curriculum that provides students with the training to work in jobs aimed at conserving the earth's biodiversity. This option provides a broad-based education that covers all levels of the biological hierarchy ranging from the genetic level to the landscape level, and provides additional training in social sciences and management. In the words of Hunter (1996), "Conservation biology is cross-disciplinary, reaching far beyond biology into subjects such as philosophy, economics, and sociology--disciplines that are concerned with the social environment in which we practice conservation--as well as into subjects such as law and education that determine the ways we implement conservation."

To graduate in this option, students must achieve a "C" or better in the following eight core courses: Biol 421, Fish/For/Rnge/RRT/WLF 200, For 429, Gene 314 or Biol 210, Phil 452, RRT 493, WLF 440, and WLF 448.

Biol 421 Advanced Evolution/Population Dynamics (3 cr)
Fish/For/Rnge/RRT/WLF 200 Seminar (1 cr)
For 429 Landscape Ecology of Forests and Rangelands (2 cr)
Gene 314 General Genetics (3 cr) or Biol 210 Genetics (4 cr)
Phil 452 Environmental Philosophy (3 cr)
RRT 493 International Land Preservation and Conservation Systems (3 cr)
Wlf 316 Wildlife Ecology II (4 cr) or Fish 316 Principles of Population Dynamics (2 cr)
WLF 440 Conservation Biology (3 cr)
WLF 448 Fish and Wildlife Population Ecology (4 cr)

Quantitative Resource Analysis Restricted Electives (one course from the following) (3-4 cr)
- For 375 Airphoto Interpretation and Mapping (3 cr)
- For 394 Quantitative Resource Analysis (3 cr.)
- For 472 Remote Sensing of Environment (3 cr)
- For 476 Forestry Project Evaluation (3 cr)
- For 477 Integrated Forest Management Models (3 cr)
- Geog 385 GIS Primer (3 cr)
- Math 437 Mathematical Biology (3 cr)
- Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
- Stat 401 Statistical Analysis (3 cr)
- Stat 422 Sample Survey Methods (2 cr)
- Stat/GeoE 428 Geostatistics (3 cr)

Resource Management Restricted Electives (two courses from the following) (4-8 cr)
- Fish 418 Fisheries Management (4 cr)
- For 424 Silviculture II (2 cr)
- For 462 Watershed Management (2 cr)
- Rnge 354 Wildland Vegetation Management and Restoration (3 cr)
- Range 454 Rangeland Weed Management (3 cr.)
- Rnge 456 Integrated Rangeland Management (3 cr)
- RRT 385 Resource Recreation and Tourism Management (3 cr)
- RRT 484 Management of Recreation Sites and Leisure Settings (2 cr)
- RRT 490 Wilderness Management (3 cr)
- RRT 496 Monitoring Human Impacts in Wilderness (3 cr)
- WLF 445 Nongame Management (2 cr)
- WLF 492 Wildlife Management (4 cr)

Ecology restricted electives (two courses) (4-7 cr):
- Biol 478 Animal Behavior (3 cr)
- Ent 472 Aquatic Entomology (3 cr)
- Fish 314 Fish Ecology (3 cr)
- Fish 415 Limnology (4 cr)
- Fish/Rnge 430 Riparian Ecology and Management (2 cr)
- For 330 Forest Ecosystem Processes (3 cr)
- For 423 Forest Community Ecology (1 cr)
- For 426 Wildland Fire Management and Ecology (3 cr)
- For 466 Diseases and Insects of Woody Plants (3 cr)
- MMBB 425 Microbial Ecology (3 cr)

PlSc 410 Biology of Weeds (3 cr)
Rnge 440 Wildland Restoration Ecology (3 cr)
Rnge 459 Rangeland Ecology (3 cr)
WLF 314 Wildlife Ecology I (3 cr)
WLF 441 Behavioral Ecology (3 cr)

Organismal biology elective (one course from the following) (3-4 cr):
Biol/Ent 211 Insect Biology (4 cr)
Biol 481/Fish 411 Ichthyology (4 cr)
Biol 483 Mammalogy (3 cr)
Wlf 482 Ornithology (3 cr)

Social/political restricted electives (two courses from the following) (4-6 cr):
AgEc 356 Agricultural Programs and Policies (3 cr)
Comm 331 Conflict Management (3 cr)
Econ 385 Environmental Economics (3 cr)
For 484 Forest Policy and Administration (2 cr)
Geog 420 Land, Resources, and Environment (3 cr)
Geog 444 Environmental Assessment (3 cr)
Hist 424 American Environmental History (3 cr)
PolS 464 Politics of the Environment (3 cr)
RRT 486 Public Involvement in Natural Resource Management (3 cr)
RRT 489 Personalities and Philosophies in Conservation (2 cr)

Electives to total 128 credits for the degree

## Academic Minor Requirements

### NATURAL RESOURCES MINOR

Note: Not open to students pursuing a major in the College of Natural Resources.

For 235 Society and Natural Resources (3 cr)
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
Courses chosen from at least three of the following subjects, including at least 3 credits at the 300 level or above (12 cr):
Fishery Resources (Fish)
Forest Products (ForP)
Forest Resources (For)
Range Resources (Rnge)
Resource Recreation and Tourism (RRT)
Wildlife Resources (WLF)

## Graduate Degree Programs

Candidate must fulfill the requirements of the College of Graduate Studies and of the College of Natural Resources. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** Thesis and nonthesis options are offered with majors in fishery resources, forest products, forest resources, rangeland ecology and management, resource recreation and tourism, and wildlife resources. See the respective departmental sections for details.

**Master of Natural Resources.** General M.N.R. requirements apply. To provide the breadth of knowledge required in this 30-credit degree, students must complete a minimum of two courses in each of the four major emphasis areas (policy, planning, and law; human dimensions; ecology and resources; and tools and technology). Students will select courses based on their academic background and career goals. Students must also complete two 3-day, 1-credit colloquia to be offered on the UI campus. An additional 6 credits of advisor-approved electives is to be selected from nonlisted courses. The M.N.R. Committee may approve course substitutions.

**Doctor of Philosophy.** General Ph.D. requirements apply. Doctoral candidates are required to have an understanding of the principles of resource management in areas other than that chosen as a specialization. There is no general college requirement of proficiency in a foreign language for the doctorate, but one may be required by an individual student's committee where this seems desirable.

There is only one major for the Ph.D. degree--"natural resources"; however, dissertation topics are selected from disciplinary areas within each department. The single designation for the major is in keeping with the college's philosophy of integrated resource management.

# Department of Naval Science

**Ron C. Plucker, Dept. Head (101 Navy Bldg. 83844-1122; phone 208/885-6333; http://www.uidaho.edu/~navyrotc).** ***Faculty:*** **Mark J. Brownell, Christopher D. Delinski, Joel W. Feldmeier, Craig O. Petersen, Ron C. Plucker.**

The Navy-Marine Corps Officer Education Program (NOEP) provides instruction and training for young men and women in preparation for being commissioned as officers in the United States Navy or Marine Corps through the Naval Reserve Officers Training Corps (NROTC). Students are designated as midshipmen and receive extensive academic, physical, and leadership training while pursuing a degree in a field of their choice from the university. Emphasizing sustained strong academic performance along with leadership and physical fitness training, the goal of NROTC is to develop each midshipman to his or her highest mental, moral, and physical capability in preparation for assuming a position of high trust and responsibility as a commissioned officer in the United States Naval Service.

Both scholarship and nonscholarship programs are offered in four-, three-, and two-year options. Application is normally made for four-year programs during the senior year in high school, however, students may apply directly to the professor of naval science for the College Program at the beginning of their freshman year. Application for the three- or two-year programs may be made during the student's freshman or sophomore year. Information concerning any of these programs may be obtained from the professor of naval science.

The Naval Science Program consists of 20 semester hours of professional naval courses covering subjects such as engineering, navigation, military organization, and leadership. Scholarship students must also complete all requirements for the Bachelor of Naval Science degree (see courses). All uniforms and naval science textbooks are provided.

Upon graduation, the midshipmen are commissioned as officers in the U.S. Navy or U.S. Marine Corps. All new officers receive orders to active duty and are assigned to a broad spectrum of communities such as aviation, surface warfare, submarines, Marine ground forces, or other specialized fields.

**Scholarship Program.** Scholarship benefits include tuition, fees, a book allowance, and a monthly stipend of up to $350. Initial selections are based on college entrance examination scores (SAT or ACT) and high school or college level academic performance.

A student on scholarship participates in three summer training cruises of four to six weeks duration. During the first cruise, students are introduced to the submarine, amphibious warfare, surface warfare, and aviation communities. The second and third cruises are aboard ships of the Pacific or Atlantic fleet and often include travel to Europe or the Far East. During summer cruises, the students receive one-half the pay of newly commissioned officers, room, and board. Graduates of this program are commissioned as active duty reserve officers in the Navy or Marine Corps.

**College Program.** Application for this program is made directly to the head of the Department of Naval Science. Students receive their uniforms and naval science textbooks at no cost and begin receiving a monthly $300 stipend at the beginning of their junior year. This program requires one training cruise during the summer following the junior year aboard a ship of the Pacific or Atlantic Fleet. During the cruise, students receive one-half the pay of newly commissioned officers, room, and board. College Program graduates are commissioned as active duty reserve officers. Also, College Program students may be nominated by the professor of naval science to receive a scholarship, beginning in the sophomore year. College Program students complete six credits of algebra and trigonometry, six credits of physical science, six credits of English composition, and three credits of introductory computer science in addition to naval science courses.

**Marine Corps Option.** Both male and female Scholarship and College Program students who desire a Marine Corps commission may apply for the Marine Corps Option during their first two years in college. Students taking this option enroll in specialized courses on Marine Corps subjects during their junior and senior years and participate in summer training at the Marine Corps Development and Education Center, Quantico, Virginia, during the summer following their junior year.

**Nursing Option.** A selected number of scholarships are available for the Navy Nursing Program. Nursing students spend one to two years studying naval science and other entry-level courses at the University of Idaho, then transfer to an accredited nursing school to complete their RN training. Lewis-Clark State College in Lewiston, Idaho, and the Intercollegiate College of Nursing in Spokane, Washington are available for nursing education in conjunction with UI Naval ROTC. Nurse option students participate in battalion activities, and also attend two summer training cruises during their college career. Graduates are commissioned as active duty reserve officers in the Navy Nurse Corps.

**Naval Science Institute.** Navy-Marine Corps Scholarship and College Program applicants entering the program after completion of their sophomore year will be required to attend the Naval Science Institute (NSI) during the summer between their sophomore and junior years. At the NSI they will study the material taken by the four-year candidates during their freshman and sophomore years. On completion of the NSI, candidates return to the university and complete their junior and senior years of the naval science curriculum with their peers. Candidates in the two-year program will participate in one afloat cruise between their junior and senior years. Applications must be submitted no later than March of the sophomore year. The top NSI graduates are awarded scholarships for their last two years of college. The remaining graduates enter the College Program and receive those benefits.

**Field Trips.** Field trips to Navy and Marine Corps facilities are arranged periodically in order to allow the Navy-Marine Corps Officer Education Program members the opportunity to learn more about the naval service.

## Courses

See part 6 for courses in Naval Science (NS).

## Undergraduate Curricular Requirements

### NAVAL SCIENCE (B.N.S.)

Required course work includes the university requirements (see regulation J-3) and:

NS 101 Introduction to Naval Science (2 cr)
NS 102, 201 Ships Systems I-II (6 cr)
NS 202 Seapower and Maritime Affairs (2 cr)
NS 301 Navigation (3 cr)
NS 302 Naval Operations (3 cr)
NS 401 Naval Organization and Management (2 cr)
NS 402 Naval Leadership (2 cr)
CS 112 Intro to Problem Solving and Programming or BuEd 111 Computer Skills (3 cr)
Math 170, 175 Analytic Geometry and Calculus I, II (8 cr)
Phys 211, 212 Engineering Physics I-II (8 cr)
One of the following courses (3 cr):
- Hist 430 U.S. Diplomatic History
- Hist 455 20th Century Europe
- Hist 458 Military History
- PolS 237 International Politics
- PolS 438 Conduct of American Foreign Policy
- PolS 449 World Politics and War

A student applying for the bachelor's degree in naval science must have completed at least 80 percent of the requirements toward another university degree, as approved by the dean of the college concerned.

A student in naval science who concurrently qualifies for both the B.N.S. degree and another university degree will be awarded only the other university degree.

The awarding of the B.N.S. degree is administered through the College of Letters and Science; however, the academic records of the student concerned remain with the college in which he or she is registered for the other baccalaureate degree.

## Academic Minor Requirements

### NAVAL SCIENCE MINOR

NS 101 Introduction to Naval Science (2 cr)
NS 102, 201 Ships Systems I, II (6 cr)
NS 202 Seapower and Maritime Affairs (2 cr)
Four to six courses from the following (10 cr):
- NS 301 Navigation
- NS 302 Naval Operations
- NS 311 Evolution of Warfare
- NS 401 Naval Organization and Management
- NS 402 Naval Leadership
- NS 412 Amphibious Operations

# Nuclear Engineering

**Steven G. Penoncello, Program Director (125 Janssen Engr. Bldg. 83844-1011; phone 208/885-6479).**

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Nuclear Engineering Committee. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. These degrees are offered only through the graduate program at the University of Idaho Center, Idaho Falls. Consult the center's bulletin for specific details.

**Master of Science.** General M.S. requirements apply.

**Master of Engineering.** General M.Engr. requirements apply.

**Doctor of Philosophy.** General Ph.D. requirements apply. Preliminary screening of candidates and program planning for those admitted are essential features of the Ph.D. program. Early in the program, the student must complete a qualifying examination, which will be oral and possibly written. The preliminary examination is taken after most of the course work is completed. This examination is generally limited to the areas of emphasis indicated by the student's dissertation topic and includes a presentation of the dissertation proposal; it will be written and oral. No foreign language is required; however, the program does require a satisfactory level of achievement in mathematics and numerical analyses and in computer programming.

# Department of Philosophy

**Kathryn Paxton George, Dept. Chair (407 Morrill Hall 83844-3016; phone 208/885-7107; http://www.ls.uidaho.edu/Phil).** ***Faculty:*** **Janice Capel Anderson, Kathryn Paxton George, Nicholas F. Gier, Douglas Lind, Michael O'Rourke.** ***Adjunct Faculty:*** **Raymond Dacey, James A. Foster.** ***Affiliate Faculty:*** **James H. Austin, Ken W. Clark, Kip W. Jenkins, Sharon Kehoe, Kurt Torell.**

Philosophy examines the grounds of knowledge, the nature of reality, and the nature of value, justice, and morality. It asks fundamental questions about how we reason and how we ought to reason. Its subject matter encompasses all the other academic disciplines, indeed all areas of human experience--society, values, mind, language, art, and science.

The main value of philosophy lies in its contribution to a liberal education. As a central discipline of the humanities, philosophy encourages those who study it to gain insight into themselves and others--insight that proves helpful in setting high standards and working in productive collaboration with one's associates. In addition, philosophy is an excellent means of learning to reason and write clearly--skills useful in every conceivable human enterprise, now or in the future. Some philosophy majors pursue careers in academia; others, however, make rewarding careers for themselves in business, government, journalism, law, and human services.

## Courses

See part 6 for courses in Philosophy (Phil).

## Undergraduate Curricular Requirements

### PHILOSOPHY (B.A. or B.S.)

Note: Students who intend to do graduate work are advised to take the Bachelor of Arts degree.

The electives in philosophy and related fields are to be selected with the approval of the chair of philosophy.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Phil 103 Ethics (3 cr)
Phil 201 Critical Thinking or Phil 202 Intro to Symbolic Logic (3 cr)
Phil 240 Belief and Reality (3 cr)
Phil 309 History of Ancient Philosophy (3 cr)
Phil 310 History of Modern Philosophy (3 cr)
Phil 490 Senior Seminar (3 cr)
Philosophy electives (upper-div; must incl at least one course in non-Western thought) (12 cr)
Related fields (humanities, social sc, and sc) (20 cr)

## Academic Minor Requirements

### PHILOSOPHY MINOR

Phil 103 Ethics or 201 Critical Thinking or 202 Intro to Symbolic Logic or 240 Belief and Reality (3 cr)
Phil 309 History of Ancient Philosophy (3 cr)
Phil 310 History of Modern Philosophy (3 cr)
Three upper-division philosophy courses (9 cr)

### RELIGIOUS STUDIES MINOR

See the Religious Studies section for details on this minor.

# Department of Physics

**Rex Gandy, Dept. Chair (311A Engineering/Physics Bldg. 83844-0903; phone 208/885-6380; http://www.phys.uidaho.edu).** ***Faculty:*** **Leah Bergman, Philip A. Deutchman, Rex Gandy, Ruprecht Machleidt, David N. McIlroy, George Patsakos, Francesca Sammarruca-Machleidt, Bernhard J. Stumpf, Henry Willmes, Wei Jiang Yeh.**

Physics is the scientific study of the nature and behavior of matter and energy. On the basis of quantitative observations, physicists develop theories to describe the observed behavior. Further experiments and observations are used to verify or refine the theories. The scientific method demands logical and mathematical rigor. The wealth of applications of physics to technology appeals to pragmatic persons, yet physics has much greater similarity to the arts and humanities than is commonly realized, because of the intellectual curiosity and creativity on which it is built.

The physics program at UI introduces students in technical and nontechnical curricula alike to the scientific method and to physical laws. The B.A. and B.S. curricula in physics emphasize a broad liberal-arts education and the core subjects in physics. Many B.A. and B.S. recipients go on to graduate study in physics or related disciplines.

Training in the theory, history, and philosophy of physics is provided by the required core courses and electives in most of the major areas of specialization. Formal laboratory courses and directed research familiarize students with experimental techniques, modern instrumentation, and computers. Equipment in the department's research laboratories includes low-temperature, strong magnetic field, high-vacuum, and vapor deposition facilities, electron and atomic beam apparatus, plasma devices, various lasers, spectrometers, optical telescopes, and nuclear radiation detectors. All offices, laboratories, and classrooms have computer network connections. The program is supported by a machine shop and an electronics shop. Collaborations with other universities and research institutes provide access to an even wider range of facilities.

The department offers graduate curricula leading to the M.S., M.A.T., and Ph.D. degrees. A bachelor's degree in physics is normally required as preparation for graduate study. Students with a bachelor's degree in another physical science, engineering, or mathematics will generally qualify after removal of a few upper-division-level deficiencies. A major in secondary education with specialization in physical science and mathematics is suitable preparation for the M.A.T. curriculum.

Research in the Department of Physics emphasizes the areas of condensed matter physics, nuclear physics, atomic physics, and plasma physics. In addition, there is an interest in research on physics teaching.

The M.S. is not a prerequisite for the Ph.D., but beginning doctoral students may earn the M.S. if they wish. General departmental course requirements exist for the M.S., M.A.T., and Ph.D. degrees, in addition to the general requirements of the Graduate College. Other course requirements are specified in the student's study plan, developed by the student and his or her advisor and approved by the student's supervisory committee. All graduate students are encouraged to gain some teaching experience during the course of their graduate studies.

Faculty members in the department will be happy to discuss programs in detail with interested persons. Requests for information or a tour of the facilities can be made by a letter, e-mail, or telephone call (208/885-6380) to the department.

## Courses

See part 6 for courses in Physics (Phys).

## Undergraduate Curricular Requirements

### PHYSICS (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Phys 200 Physics Seminar (4 cr)
Phys 211, 212, 213 Engineering Physics I, II, III (12 cr)
Phys 305 Modern Physics (3 cr)
Phys 321-322 Analytical Mechanics (6 cr)
Phys 341-342 Electromagnetic Fields I-II (6 cr)
Phys 351 Introductory Quantum Mechanics I (3 cr)
Phys 371 Mathematical Physics (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Mathematics (upper-division) (6 cr)

**And, for the B.A. only:**

Phys 411 Physical Instrumentation I (3 cr)
Two upper-division physics courses from the following: Phys 412, 425, 428, 431, 443, 444, 463, 465, 485 (6 cr).

**And, for the B.S. only:**
Upper-division physics courses, including at least 4 cr of lab and 9 cr from the following: Phys 411, 412, 425, 428, 431, 443, 444, 463, 465, 485 (at least 15 cr).

# Academic Minor Requirements

## PHYSICS MINOR

Phys 211, 212 Engineering Physics I, II (8 cr)
Phys 213 Engineering Physics III or Engr 210 Engineering Statics (3-4 cr)
Physics courses numbered 300 or above (usual prerequisites are Math 170, 175, 275) (12 cr)

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Physics. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** General M.S. requirements for a degree with thesis apply. The student must complete a total of at least 30 credits, 20 of which must be at the graduate level, including a maximum of 10 credits in research and thesis. Specific departmental graduate course requirements are 2 credits in Phys 501 and Phys 521, 541-542, and 551. If a student's undergraduate preparation is considered deficient (e.g., if it lacks laboratory experience at the upper-division level), then certain undergraduate courses will be required in the study plan.

All M.S. graduate students are required to enroll in Phys 501 (Physics Seminar) each semester while in residence, even if not formally registered for credit in this course. Registration may be for zero credit.

Students must pass a comprehensive examination, which must be taken at the first offering after the student has completed the core courses required for the M.S. degree. Full-time students may not delay the completion of their core course requirements by avoiding the taking of a core course when offered except with the prior written consent of the Academic Standards Committee and the student's major professor. The examination is written and covers all of general graduate-level physics as defined by the required courses for the M.S. degree. Typically, it will be administered on two different days, with a time limit of approximately three hours for each day. The results of the examination will be evaluated by the physics faculty. If the comprehensive examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three nor more than 14 months following the first attempt.

A final defense of the M.S. thesis is scheduled upon completion of the thesis. Full-time students have to take this examination no later than two years after passing the comprehensive examination. The candidate is required to defend his or her work and show a satisfactory knowledge of the field in which the thesis research has been performed. The defense is oral and would typically last for one hour. The exam has to be announced to the physics faculty at least one week in advance. All members of the physics faculty are permitted to attend and ask questions. A recommendation of a majority of the student's graduate committee is necessary to pass the defense. If the defense is failed, it may be repeated only once; the repeat defense must be taken within a period of not less than three months nor more than one year following the first attempt.

**Master of Arts in Teaching.** General M.A.T. requirements apply.

**Doctor of Philosophy.** General Ph.D. requirements apply. Correspondence concerning the student's specific goals is encouraged in the preliminary planning of the Ph.D. program.

Specific departmental course requirements are: Phys 501 (2 cr), 511, 521, 533, 541-542, 550-551, 571, and at least nine additional semester-hours of physics courses at the 500 level. A typical study plan would include 40 to 50 credits of course work at the 500 level in physics and about 30 credits in research and thesis. The study plan also would include at least six units of upper-division or graduate course work outside of physics. The nature and number of these additional units will depend upon the professional goals of the individual student. In planning a program, the student should consult with the departmental Academic Standards Committee for approval of any particular choice of nonphysics course work. The Ph.D. degree in physics is primarily a recognition of ability and accomplishment in research. The purpose of the course work is to provide the factual and theoretical background for research. Successful completion of course work is not in itself considered as completion of the major requirement for the degree.

All Ph.D. graduate students are required to enroll in Phys 501 (Physics Seminar) each semester while in residence, even if not formally registered for credit in this course. Registration may be for zero credit.

No formal foreign language requirement exists for Ph.D. candidates; however, in individual cases, depending on the research topic, a reading knowledge in one foreign language may be required by the thesis advisor.

A two-part preliminary examination is required. Part I is taken after the student has completed the courses required for the Ph.D. degree. Full-time students have to take this exam no later than 28 months after entering the graduate program. The examination is written and covers all of general graduate-level physics as defined by the required courses for a Ph.D. degree. Typically, it will be

administered on two different days, with a time limit of approximately five hours for each day. The results of the examination will be evaluated by the physics faculty. If the preliminary examination, part I, is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months nor more than 14 months following the first attempt.

Part II of the preliminary examination is set by the major professor of the Ph.D. student for a date within six months after part I has been passed. The student is required to explain the goals of his or her planned Ph.D. research to the thesis committee and show general familiarity with the fields relevant for the research. Part II is oral and would typically last for one hour. The exam is to be announced to the physics faculty at least one week in advance. All members of the physics faculty are permitted to attend and ask questions. The student's committee certifies to the Graduate College the results of the preliminary examinations. Upon passing, the student is advanced to candidacy for the Ph.D. degree. If part II is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months nor more than one year following the first attempt.

A final defense of the Ph.D. thesis is scheduled upon completion of the dissertation. The candidate is required to defend his or her work and show a superior knowledge of the field in which the thesis research has been performed. The defense is oral and would typically last for one hour. The exam is to be announced to the physics faculty at least one week in advance. All members of the physics faculty are permitted to attend and ask questions. A recommendation of a majority of the student's graduate committee is necessary to pass the defense. If the defense is failed, it may be repeated only once; the repeat defense must be taken within a period of not less than three months nor more than one year following the first attempt.

# Department of Plant, Soil, and Entomological Sciences

**Michael J. Weiss, Dept. Head (242 Iddings Wing, Ag. Sc. Bldg. 83844-2339; phone 208/885-6277; pseshead@uidaho.edu).**

***Crop and Weed Science Division:*** **Donald C. Thill, Division Chair; Jack Brown, Stephen O. Guy, Pamela J. Hutchinson, Don W. Morishita, Timothy S. Prather, Larry D. Robertson, Glenn E. Shewmaker, Shree P. Singh, Edward J. Souza, W. Mack Thompson, Robert S. Zemetra**

***Entomology Division:*** **James B. Johnson, Division Chair; Juan M. Alvarez, James D. Barbour, Edward J. Bechinski, Nilsa A. Bosque-Pérez, Sanford D. Eigenbrode, Marc J. Klowden, Joseph P. McCaffrey, Thomas M. Mowry, Mark Schwarzläender, Robert L. Stoltz, Michael J. Weiss.**

***Horticulture Science Division:*** **Jeffrey C. Stark, Division Chair; Danny L. Barney, W. Michael Colt, Robert B. Dwelle, Esmaeil Fallahi, Bradley D. Geary, Saad L. Hafez, Bryan G. Hopkins, Gale E. Kleinkopf, John E. Lloyd, James H. Lorenzen, Stephen L. Love, Nora L. Olsen, Robert R. Tripepi.**

***Plant Pathology Division:*** **Philip H. Berger, Division Chair; Wesley W. C. Chun, Louise-Marie Dandurand, Robert L. Forster, John J. Gallian, Jeffrey S. Miller, S. Krishna Mohan, Phillip Nolte, Maurice V. Wiese.**

***Soil Science Division:*** **Matthew J. Morra, Division Chair; Bradford D. Brown, Jason W. Ellsworth, Jodi Johnson-Maynard, Guy R. Knudsen, Robert L. Mahler, Paul A. McDaniel, Daniel G. Strawn, Markus Tuller.**

The Department of Plant, Soil, and Entomological Sciences, within the College of Agricultural and Life Sciences, offers B.S., M.S., and Ph.D. degrees in entomology, plant science, and soil science. B.S. degrees are also offered in crop science, horticulture, and plant protection.

The challenge for today's agriculture is to provide the world with food and fiber while protecting the environment. Students develop skills needed for professional careers in crop production, plant maintenance, pest control, biotechnology, biological control of insects, weeds, and diseases, and preservation of soil, water, and air quality.

The **entomology** major emphasizes both basic and applied aspects of the study of insects and how they influence human activities. The program provides a broad entomological education with opportunities to specialize in such areas as agricultural and aquatic entomology, biological control, host plant resistance, insect ecology, physiology, and insect-plant relations. The curriculum is designed for students pursuing professional careers in the basic and applied fields of entomology, or for those interested in continuing their education at the graduate level.

Graduate work in entomology is offered in the following specialized areas: agricultural entomology, biological control of insects and weeds, insect biology, insect ecology, insect-plant interactions, insect anatomy and physiology, insect transmission of plant viruses, plant resistance to insects, systematic entomology, and integrated pest management. Graduate students have access to one of the Pacific Northwest's outstanding insect collections and comprehensive entomological libraries.

Under the **plant science** degree, students can major in crop science, horticulture, or plant protection. Many courses emphasize environmental concerns, ecological relationships, and sustainability of agricultural systems.

The **crop science** major is designed to give students the necessary background to be successful in a wide range of crop related careers in agriculture. Students majoring in crop science can tailor their academic program in the basic and applied aspects of crop science to suit their individual interests and career goals. The crop science major will prepare students for professional careers in cropping systems management, agricultural consulting, plant biotechnology, plant breeding and genetics, seed production and certification, and weed science.

The **horticulture** major allows students to develop academic programs in horticultural science, arboriculture, landscape management, or horticultural crop production. Students can take courses highlighting production and management of horticultural crops that are economically significant to Idaho and the nation, as well as the environmental aspects of horticultural production. Students majoring in horticulture can also prepare for careers in management and operation of commercial nurseries, greenhouses, the maintenance of trees and landscapes, garden centers, golf courses, recreational parks, or related industries. The horticulture major is flexible enough to enable students to pursue science-oriented careers or advanced degree studies.

The **plant protection** major is designed for students with an interest in the broad area of plant pest protection with potential emphasis areas of entomology, plant pathology, and/or weed science. Students take a diverse array of applied natural science courses in crop production, plant biotechnology, entomology, plant pathology, weeds, and botanical sciences. Students majoring in plant protection can tailor their academic program to suit their individual career goals. Students receiving a plant science degree in plant protection are prepared for professional careers ranging from crop consulting to production agriculture.

Graduate work in plant science is offered in the following specialized areas: plant pathology, plant breeding and genetics, plant physiology, weed science, crop management, and horticulture, including ornamentals and postharvest physiology. Graduate majors in plant pathology can specialize in bacteriology, biological control, epidemiology, molecular biology, nematology, and virology.

The undergraduate **soil science** degree program is offered for students who are interested in businesses and industries associated with soils and farm chemicals, as professional soil scientists working with the formation, classification, chemistry, physics, and fertility of valuable soil resources, or as environmental scientists in conserving or improving soil and water quality. Courses in geology, botany, chemistry, and physics, in addition to soils, are stressed.

Graduate students in soil science may concentrate in soil specialty areas such as soil physics, chemistry, biology, fertility, or soil genesis and morphology. A graduate program may focus on a wide variety of soil-related issues such as water quality, soil quality, remediation of soils contaminated by organic or inorganic pollutants, precision agriculture, soil and water conservation issues, and plant nutrition.

The degree offerings are designed to prepare students for a variety of rewarding career opportunities. Each of these degree programs is based on a curriculum designed to prepare students for present and future employment. The department offers students the opportunity to work closely with faculty in classroom and field situations. The faculty members provide wide educational experiences for students who major in this department. Formal courses are offered as needed to serve the students in the various degree programs, and additional specialization may be obtained by enrolling in directed study, special topics, seminar, and other courses, with particular faculty members. An internship program also is available to provide students with practical job experience and to open doors for career opportunities.

For advanced studies, specially equipped laboratories for histology, anatomy, and physiology and greenhouse laboratory units with controlled temperature and light programmed rooms and growth chambers are available. A state of the art biotechnology facility that has space to accommodate 101 faculty, staff, and students. The university has 1,145 acres for field crops, orchards, and livestock located close to campus. Excellent field and laboratory facilities are also available at research and extension centers at Aberdeen, Parma, and Twin Falls. Additionally, the graduate program is closely coordinated with the Departments of Entomology, Crop and Soil Sciences, Horticulture and Landscape Architecture, and Plant Pathology at Washington State University (eight miles away), enhancing the department's offerings.

Faculty members are concerned with the needs and interests of individual students. Questions regarding programs, arrangements, or facilities are welcome. Prospective majors in entomology, plant science, or soil science should consult the department head in Room 242, Agricultural Science Building, or telephone 208/885-6277.

## Courses

See part 6 for courses in Entomology (Ent), Plant Science (PlSc), and Soils (Soil).

## Undergraduate Curricular Requirements

### CROP SCIENCE (B.S.Pl.Sc.)

Students in the crop science curriculum can tailor their degree to fit their area of interest in crop science. A degree in crop science prepares a student for careers in crop management and/or in the basic sciences of crop growth, development, and improvement. Basic and applied aspects of crop science including agronomy, field crop production, plant breeding, plant genetics, plant physiology, and weed science can be studied.

Required course work includes the university requirements (see regulation J-3) and:

PlSc 102 The Science of Plants in Agriculture (3 cr)
PlSc 338 Weed Control (3 cr)
PlSc 398 Internship or 399/499 Directed Study (3 cr)
PlSc 400 Seminar (1 cr)
PlSc 405 Plant Pathology (3 cr)
PlSc 407 Field Crop Production (3 cr)
PlSc 438 Pesticides in the Environment (3 cr)
Courses selected from the following (15 cr):
- PlSc 308 Forage and Grassland Management (3 cr)
- PlSc 360 World Agricultural Systems (3 cr)
- PlSc 401 Crop Physiology (3 cr)
- PlSc 408 Cereal Science (3 cr)
- PlSc 410 Biology of Weeds (3 cr)
- PlSc 422 Genetic and Molecular Aspects of Plant Reproduction (3 cr)
- PlSc 433 Experimental Approaches to Plant Regeneration (3 cr)
- PlSc 446 Plant Breeding (3 cr)
- PlSc 469 Seed Production (3 cr)
- PlSc 480 Field Trip (1 cr)
- PlSc 490 Potato Science (3 cr)

Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 311 Plant Physiology (4 cr)
Biol 341 Systematic Botany (3 cr)

Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)
Chem 275, 276 Carbon Compounds and Lab or Chem 277, 278 Organic Chemistry I and Lab (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Ent 322 Economic Entomology or Ent 211 Insect Biology (3-4 cr)
Gene 314 General Genetics (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geom or Math 160 Survey of Calculus (3-4 cr)
MMBB 154, 155 Intro Biology of Bacteria and Viruses or MMBB 250 General Microbiology (4-5 cr)
MMBB 300 Survey of Biochemistry (3 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Soil 446 Soil Fertility (3 cr)
Stat 251 Principles of Statistics (3 cr)
Biotechnology-related course (3 cr)
Computer-related elective (3 cr)
Ecology elective (2-3 cr)
Specialization option selected from the following approved courses (15 cr):
- Animal and Veterinary Science electives
- Biology and botany electives
- Bus, econ, acctg, law, business law, econ, ag econ electives
- Chemistry electives
- Computer-related electives
- Entomology electives
- Foreign language electives (up to 4 cr)
- Forestry electives
- Molecular biology/biochemistry electives
- Physics electives
- Plant science electives
- Rangeland ecology and management electives
- Soils electives

Electives to total 128 cr for the degree

## ENTOMOLOGY (B.S.Ent.)

Designed for students who desire professional careers in the basic and applied fields of entomology (insect taxonomy, ecology, physiology, and agriculture, aquatic, and forest entomology).

Required course work includes the university requirements (see regulation J-3) and:

Ent 211 Insect Biology (4 cr)
Ent 322 Economic Entomology (3 cr)
Ent 440 Insect Identification (4 cr)
Ent 484 Insect Anatomy and Physiology (4 cr)
Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 210 Genetics (4 cr)
Biol 212 Molecular and Cellular Biology or Biol 213 Prin of Biological Structure and Function (4 cr)
Biol 314 Ecology and Population Biology (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
MMBB 250 General Microbiology (5 cr)
PlSc 405 Plant Pathology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Entomology electives (5 cr)
Life sciences electives (11 cr)
Mathematics electives (4 cr)
Physics electives (3 cr)
Humanities and social sciences electives (14 cr)
Electives to total 132 cr for the degree

**Courses strongly recommended:**
- Ent 491 Principles of Insect Pest Management (3 cr)
- Biol 341 Systematic Botany (3 cr)
- Biol 484 Invertebrate Zoology (4 cr)
- CS 101 Introduction to Computer Science (3 cr)
- Math 170 Analytic Geometry and Calculus I (4 cr)
- MMBB 380 Introductory Biochemistry (4 cr)

## HORTICULTURE (B.S.Pl.Sc.)

Students in the horticulture curriculum can study management of horticultural crops and systems, with an emphasis on environmental awareness and protection of natural resources. Basic or applied aspects of horticulture can be studied in the curriculum.

Required course work includes the university requirements (see regulation J-3) and:

PlSc 102 The Science of Plants in Agriculture (3 cr)
PlSc 338 Weed Control (3 cr)
PlSc 398 Internship or PlSc 399 or 499 Directed Study (3 cr)
PlSc 400 Seminar (1 cr)
PlSc 405 Plant Pathology (3 cr)
PlSc 438 Pesticides in the Environment (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 311 Plant Physiology (4 cr)
Biol 341 Systematic Botany (3 cr)
Chem 101 Intro to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)
Chem 275, 276 Carbon Compounds, Lab or Chem 277, 278 Organic Chem I, Lab (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Ecology elective (2-3 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Ent 322 Economic Entomology or Ent 211 Insect Biology (3-4 cr)
Gene 314 General Genetics (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geom or Math 160 Survey of Calculus (3-4 cr)
MMBB 154, 155 Intro Biology of Bacteria and Viruses or MMBB 250 General Microbiology (4-5 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Soil 446 Soil Fertility (3 cr)
Stat 251 Principles of Statistics (3 cr)
Horticulture electives selected from the following (15 cr):
- PlSc 202 Plant Propagation
- PlSc WS301 Turfgrass Culture
- PlSc WS310 Pomology
- PlSc WS311 Pomology Laboratory
- PlSc WS313 Viticulture and Small Fruits
- PlSc WS320 Olericulture--Commercial Vegetable Crops
- PlSc WS321 Olericulture Lab--Commercial Vegetable Crops
- PlSc ID340 Nursery Management
- PlSc ID341 Nursery Management Laboratory
- PlSc 398 Internship
- PlSc 399 Directed Study
- PlSc WS418 Post-Harvest Biology and Technology
- PlSc WS430 Ornamental Plant Production I
- PlSc WS431 Ornamental Plant Production II
- PlSc ID433 Plant Tissue Culture Techniques
- PlSc 464 Landscape Maintenance
- PlSc 480 Field Trip
- PlSc 499 Directed Study

Approved supporting courses from the following areas (18 cr):
- Animal and veterinary science
- Biology
- Agricultural economics, business law, business, economics, accounting, law
- Chemistry
- Computer-related courses
- Entomology
- Foreign language (up to 4 credits)
- Forestry
- Landscape architecture
- Molecular biology/biochemistry
- Physics
- Plant science
- Soils

Electives to total 128 cr for the degree

## PLANT PROTECTION (B.S.Pl.Sc.)

The plant protection major examines plant culture under varying circumstances of environmental and biological stress. The plant protection curriculum focuses on the management of plants and plant pests and other production constraints in the field, garden, nursery, and woodlot that impact the quantity and/or quality of plants and plant products. Plant protection is examined relative to environmental variables such as water, light, temperature, nutrients, and chemical toxicants and biological variables such as insects,

diseases, weeds, and plant/pest interactions. Emphasis is placed on pest management via gene manipulation and other new biotechnologies. Via electives, students may emphasize or specialize in entomology, weed science, and/or plant pathology.

Required course work includes the university requirements (see regulation J-3) and:

PlSc 102 The Science of Plants in Agriculture (3 cr)
PlSc 338 Weed Control (3 cr)
PlSc 398 Internship or PlSc 399 or 499 Directed Study (3 cr)
PlSc 400 Seminar (1 cr)
PlSc 401 Crop Physiology (3 cr)
PlSc 405 Plant Pathology (3 cr)
PlSc 407 Field Crop Production (3 cr)
PlSc 410 Biology of Weeds (3 cr)
PlSc 438 Pesticides in the Environment (3 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 203 General Botany (4 cr)
Biol 311 Plant Physiology (4 cr)
Chem 101 Intro to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)
Chem 275, 276 Carbon Compounds and Lab (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)
Ent 211 Insect Biology (4 cr)
Ent 322 Economic Entomology (3 cr)
Two of the following courses (5-6 cr):
  Ent 446 Host Plant Resistance to Insects and Pathogens
  Ent 447 Fundamentals of Biological Control
  Ent 491 Principles of Insect Pest Management
Gene 314 General Genetics (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry or Math 160 Survey of Calculus or Math 170 Analytic Geometry and Calculus I (3-4 cr)
MMBB 154, 155 Intro Biology of Bacteria and Viruses or MMBB 250 General Microbiology (4-5 cr)
MMBB 300 Survey of Biochem or MMBB 380, 382 Intro Biochem and Lab (3-6 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Soil 446 Soil Fertility (3 cr)
Stat 251 Principles of Statistics (3 cr)
Biotechnology-related course (3 cr)
Computer-related elective (3 cr)
Ecology elective (2-3 cr)
Science approved electives (AVS, PlSc, Biol, EnvS, MMBB, Ent, Soil, Rnge, For) (9 cr)
Electives to total 128 cr for the degree

## SOIL SCIENCE (B.S.Soil Sc.)

This degree prepares students for a wide variety of professional careers in challenging areas including (a) food and fiber production, (b) environmental protection, such as water quality, waste management, environmental cleanup, and soil conservation, and (c) land resource allocation and management in various ecosystems. Graduates are prepared for employment by agencies and companies such as agricultural consulting firms, farm chemical manufacturers and dealers, state and federal land and water resource organizations, waste management and environmental consulting firms, and graduate school. Graduates from the degree will apply for certification as Associate Professional Soil Scientists through the Federation of Certifying Boards in Agriculture, Biology, Earth, and Environmental Sciences (ARCPACS).

Students must earn a grade of C or better in all courses with the Soil prefix that are required for the major.

Required course work includes the university requirements (see regulation J-3) and:

Soil 205, 206 General Soils and Lab (4 cr)
Soil 415 Soil Physics (3 cr)
Soil 422 Environmental Soil Chemistry (3 cr)
Soil 437 Soil Biology or 425 Microbial Ecology (3 cr)
Soil 446 Soil Fertility (3 cr)
Soil 447 Soil Fertility Management or 438 Pesticides in the Environment (3 cr)
Soil 454 Soil Development and Classification (3 cr)
Soil 499 DS: Professional Certification (1 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 253 Quantitative Analysis (5 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
CS 101 Intro to Computer Sc or CS 112 Intro to Problem Solving and Programming (3 cr)

Engl 317 Technical Writing (3 cr)
Geol 101 Physical Geology (4 cr)
Math 160 Survey of Calculus or Math 170 Analytic Geometry and Calculus I (4 cr)
MMBB 250 General Microbiology (5 cr)
Phys 111-112 General Physics I-II (8 cr)
Stat 251 Principles of Statistics (3 cr)
Electives to total 128 cr for the degree

## Academic Minor Requirements

### CROP SCIENCE MINOR

Ent 211 Insect Biology (4 cr)
PlSc 102 The Science of Plants in Agriculture (3 cr)
PlSc 405 Plant Pathology (3 cr)
PlSc 407 Field Crop Production (3 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Courses selected from the following (3 cr):
- PlSc 308 Forage and Grassland Management
- PlSc 401 Crop Physiology
- PlSc 446 Plant Breeding
- PlSc 469 Seed Production
- PlSc 490 Potato Science

### ENTOMOLOGY MINOR

Ent 211 Insect Biology (4 cr)
Entomology electives (14 cr)

### HORTICULTURE MINOR

PlSc 102 The Science of Plants in Agriculture (3 cr)
PlSc 202 Plant Propagation (3 cr)
Three of the following courses (9 cr)
- PlSc 310 Pomology
- PlSc 320 Olericulture--Commercial Vegetable Crops
- PlSc 340 Nursery Management
- PlSc 464 Landscape Maintenance

Two of the following courses (5-8 cr)
- PlSc 234 Controlled Environments for Horticultural Production
- PlSc 405 Plant Pathology
- Gene 314 General Genetics
- LArc 288 Plant Materials I
- Soil 205, 206 General Soils and Lab

### PLANT PROTECTION MINOR

Ent 211 Insect Biology (4 cr)
Ent 491 Principles of Insect Pest Management (3 cr)
PlSc 338 Weed Control (3 cr)
PlSc 405 Plant Pathology (3 cr)
Courses selected from the following (5-6 cr):
- Ent 322 Economic Entomology
- Ent 447 Fundamentals of Biological Control
- Ent 451 Applied Biological Control: Weeds
- Ent 452 Applied Biological Control: Arthropod Pests
- Ent 453 Applied Biological Control: Microbial Control
- PlSc 410 Biology of Weeds

### SOIL SCIENCE MINOR

Soil 205, 206 General Soils and Lab (4 cr)
Soil 415 Soil Physics (3 cr)
Soil 422 Environmental Soil Chemistry (3 cr)
Soil 446 Soil Fertility (3 cr)
Soil 454 Soil Development and Classification (3 cr)
Courses selected from the following to total at least 18 cr for the minor (0-2 cr)
- Soil 437 Soil Biology
- Soil 447 Soil Fertility Management

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Plant, Soil, and Entomological Sciences. See the College of Graduate Studies section of Part 4 for general requirements applicable to each degree.

Requirements for admission to the department's graduate program include the Graduate Record Examination.

Master and Doctoral students will choose a major professor with the concurrence of the faculty member involved. This choice is based upon the availability of the faculty member and the compatibility of the student's research interests with those of the professor.

**Master of Science--Major in Entomology.** Thesis and nonthesis options are offered. Admission to graduate programs in entomology requires an undergraduate degree, usually in some field of biology. Specific requirements for each degree are determined by the student's graduate committee. Candidates for the M.S. with zoology or entomology course deficiencies in their undergraduate program may be required to list those courses as deficiencies on their M.S. program.

**Master of Science--Major in Plant Science or Soils (Thesis Option).** General M.S. requirements apply. These requirements include a formal program of at least 30 semester hours to be chosen in consultation with the major professor and approved by the student's supervisory committee. Candidates for this degree must complete an independent research project and submit an acceptable thesis as well as pass a final oral examination.

**Master of Science--Major in Plant Science or Soils (Nonthesis Option).** General M.S. nonthesis requirements apply.

**Doctor of Philosophy--Major in Entomology, Plant Science, or Soils.** University Ph.D. requirements apply. Additional specific requirements are determined by the student's graduate committee.

# Department of Political Science & Public Affairs Research

**Donald W. Crowley, Chair, Dept. of Political Science and Public Affairs Research (205 Admin. Bldg. 83844-3165; phone 208/885-6328).** ***Faculty:*** **Lisa J. Carlson, Donald W. Crowley, Florence A. Heffron, Robert A. Hoover, William R. Lund, Alwyn R. Rouyer, Jack E. Vincent, Patrick R. Wilson.**

Political science is the study of politics, the process of gaining, maintaining, and exercising governmental power in the United States, in other countries, and internationally. The political science major at UI provides students with a wide selection of courses in American and comparative politics, international relations, public law, public administration, and political theory. Students may choose either a Bachelor of Arts or Bachelor of Science degree program.

The department is committed to teaching excellence. Most of the introductory courses are taught by full-time faculty and all of the faculty are readily available in their offices for discussion and guidance. The department stresses the opportunity to take small classes and to interact with other students and faculty. The diversity of the faculty's intellectual pursuits and concern for students makes these courses interesting and ensures that, whatever the students' interests, from Middle Eastern politics to the American presidency, from the study of environmental politics to political violence and revolution, there is a scholar in the department who can teach the subject to them.

Students are encouraged to participate directly in the political process through internships in federal, state, and local government or on political campaigns. UI students have participated in internships with the Idaho state legislature, the Idaho Governor's office, and Idaho's U.S. senators and representatives in Washington, D.C. Other students have interned with local governments throughout the state and for federal agencies such as the State Department, and have worked on political campaigns for candidates for offices at all levels of government.

After graduation UI students find that their degree in political science opens the door to a wide variety of careers. Many students pursue careers in law. Others attend graduate school and prepare for careers in federal or state governments, as city managers or administrators, or as teachers. Some graduates choose to work with public interest groups, trade associations, and environmental groups; or eventually run for, and win, elective political office. Still other graduates find that their knowledge of politics and the skills they acquire to analyze complex institutions are excellent preparation for a career in journalism. Finally, business institutions are employing more and more political science graduates because of their ability to communicate with precision and vigor, their familiarity with large organizations and complex decision making processes, as well as their understanding of how foreign and domestic governmental institutions and U.S. multi-national corporations function in an interdependent world.

## Courses

See part 6 for courses in Political Science (PolS).

## Undergraduate Curricular Requirements

### POLITICAL SCIENCE (B.A.)

The B.A. degree emphasizes a traditional liberal arts education including a 16-credit foreign language requirement. The course work also includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

PolS 101 Intro to Political Science and American Government (3 cr)
PolS 235 Political Research Methods and Approaches (3 cr)
PolS 425 or 426 History of Political Philosophy I or II (3 cr)
PolS 495 Senior Seminar in Political Science (requires senior standing) (3 cr)
Stat 251 Principles of Statistics (3 cr)
Other courses in political science (including a minimum of 17 credits in upper-division courses and at least 6 credits in each of the following areas: (1) American government/public law/public administration and (2) comparative/international politics) (23 cr)
Courses in upper-division related fields (20 cr)

Note: A maximum of 6 credits of political science internship and/or directed study courses may be counted toward meeting the political science credit requirements.

### POLITICAL SCIENCE (B.S.)

The B.S. degree emphasizes methodology and requires increased course work in behavioral research methods. Course work also includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

PolS 101 Intro to Political Science and American Government (3 cr)
PolS 235 Political Research Methods and Approaches (3 cr)
PolS 425 or 426 History of Political Philosophy I or II (3 cr)
PolS 495 Senior Seminar in Political Science (requires senior standing) (3 cr)

Stat 251 Principles of Statistics (3 cr)
Other courses in political science (including a minimum of 17 credits in upper-division courses and at least 6 credits in each of the following areas: (1) American government/public law/public administration and (2) comparative/international politics) (23 cr)
Research methods (may be counted as related field cr if upper-division) (6 cr)
Courses in upper-division related fields (20 cr)

Note: A maximum of 6 credits of political science internship and/or directed study courses may be counted toward meeting the political science credit requirements.

# Academic Minor Requirements

## AMERICAN GOVERNMENT/PUBLIC LAW MINOR

PolS 101 Intro to Political Science and American Government (3 cr)
Six courses from the following areas (at least 6 credits in each area) (18 cr)

**American Government**
- PolS 275 American State and Local Government
- PolS 428 American Political Thought
- PolS 431 American Political Parties and Elections
- PolS 432 American Congress
- PolS 433 American Political Culture
- PolS 437 American Presidency
- PolS 439 Public Policy
- PolS 451 Public Administration
- PolS 462 Natural Resource Policy
- PolS 464 Politics of the Environment
- PolS 465 Politics and the Economy
- PolS 471 Intergovernmental Relations

**Public Law**
- PolS 429 Contemporary Political Ethics
- PolS 452 Administrative Law and Regulation
- PolS 460 Law and Society
- PolS 467 Constitutional Law
- PolS 468 Civil Liberties
- PolS 469 The Judicial Process

Note: Approved political science seminars may be substituted in this minor.

## COMPARATIVE/INTERNATIONAL POLITICS MINOR

PolS 205 Introduction to Comparative Politics (3 cr)
PolS 237 International Politics (3 cr)
Five courses in the following areas (at least 3 credits in each area) (15 cr)

**Comparative Politics**
- PolS 380 Canadian Political System
- PolS 381 Western European Politics
- PolS 383 Middle Eastern Politics
- PolS 480 Politics of Development
- PolS 482 Latin American Politics
- PolS 484 Politics of India and Subcontinent
- PolS 485 African Politics

**International Politics**
- PolS 438 Conduct of American Foreign Policy
- PolS 440 International Organizations and International Law
- PolS 449 World Politics and War
- PolS 487 Political Violence and Revolution

Note: Approved political science seminars may be substituted in this minor.

## INTERNATIONAL POLITICAL ECONOMY MINOR

This academic minor is offered through the College of Business and Economics and the College of Letters and Science.

Econ 446 International Economics (3 cr)
Econ 447 Economics of Developing Countries (3 cr)

PolS 237 International Politics (3 cr)
PolS 440 International Organizations and International Law (3 cr)
Nine credits selected from the following list, provided that no more than six credits are selected from a particular discipline (9 cr):
- Bus 481 International Finance
- Econ 385 Environmental Economics
- Econ 390 Comparative Economic Systems
- Econ 407 Public Finance
- Econ 415 Market Structure and Governmental Policy
- Econ 430 Regional/Urban Economics
- Geog 360 Population Dynamics and Distribution
- Geog 365 Political Geography
- IS 400 International Studies Seminar
- PolS 404 ST:Foreign Policy of the Pacific Rim
- PolS 404 ST:Investigating International Relations
- PolS 449 World Politics and War
- PolS 452 Administrative Law and Regulation
- PolS 464 Politics of the Environment
- PolS 465 Politics and the Economy
- PolS 487 Political Violence and Revolution

### POLITICAL SCIENCE MINOR

PolS 101 Intro to Political Science and American Government (3 cr)
PolS 425 History of Political Philosophy I or 426 History of Political Philosophy II or 428 American Political Thought (3 cr)
Three courses in American government/public law/public administration (only one course may be lower division) (9 cr)
Two courses in comparative/international politics (only one course may be lower div) (6 cr)

Note: Approved political science seminars may be substituted in this minor.

### PUBLIC ADMINISTRATION AND POLICY MINOR

PolS 101 Intro to Political Science and American Government (3 cr)
PolS 275 American State and Local Government (3 cr)
PolS 451 Public Administration (3 cr)
Four courses from the following (12 cr):
- PolS 439 Public Policy
- PolS 452 Administrative Law and Regulation
- PolS 454 Public Organization Theory
- PolS 462 Natural Resource Policy
- PolS 464 Politics of the Environment
- PolS 465 Politics and the Economy
- PolS 471 Intergovernmental Relations
- PolS 472 Local Government Politics and Administration

Note: Approved political science seminars may be substituted in this minor.

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Political Science and Public Affairs Research. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Arts.** General College of Graduate Studies M.A. requirements for application must be followed. Applicants must also submit three letters of recommendation and a 300-500 word statement of purpose directly to the Department of Political Science.

**Master of Public Administration.** Although no specific undergraduate preparation is required for the M.P.A., all students must complete the following prerequisites before completion of the program: six credits in American national and state government; six credits in sociology, economics, or psychology; and three credits in accounting, computer science, or statistics.

For the minimum of 30 credits required for the M.P.A. degree, the student may use credits earned in approved courses taken at any of the cooperating universities (University of Idaho, Idaho State University, and Boise State University). The student's supervisory committee, which must include at least one professor from a discipline or university other than that of the major professor, is responsible for approving the student's program.

At least 21 credits are required in core areas: (1) PolS 451, Public Administration; (2) three courses, one from each of the following: administrative theory, organization, and behavior; public management techniques; and public policy and policy analysis; (3) two courses, one from each of two of these five areas: administrative law; executive and administrative process; intergovernmental relations; community and regional planning; and comparative public administration; (4) a sixth course, from any of the above areas.

At least 12 credits are required in an area of emphasis. (Currently, the approved fields are: general public administration; community, state, and regional planning; criminal justice administration; environmental and natural resources administration; local government administration; public finance, budgeting, and administrative management; and public works engineering.) Students may select a thesis or nonthesis option. The preparation and oral defense of the thesis count as six credits in the area of emphasis. The nonthesis option requires oral and written exams in all areas of public administration studies.

In addition to the required 30 credits, a six-credit public service internship will be required for those students without appropriate work experience in government.

**Doctor of Philosophy.** General College of Graduate Studies requirements for application must be followed. Applicants to the Ph.D. program must also submit Graduate Record Examination scores, three letters of recommendation, and a 300-500 word statement of purpose directly to the Department of Political Science.

# Department of Psychology

**Richard Reardon, Dept. Chair (206 Student Health Ctr. 83844-3043; phone 208/885-6324).** ***Faculty:*** **Curt C. Braun, Brian P. Dyre, Kenneth D. Locke, Steven E. Meier, Jamie C. Nekich-Locke, Richard Reardon, Todd J. Thorsteinson, Steffen Werner, Mark F. Yama.** ***Adjunct Faculty:*** **W. Harold Godwin, Martha A. Kitzrow, Charles R. Morrison, Diane L. Phillips-Miller, Joan Pulakos, Steve Saladin.** ***Affiliate Faculty:*** **Jerry L. Harbour, Susan G. Hill, Justin G. Hollands, Mark L. McMulkin, Gregory L. Wilson, Brenda K. Wood.**

Psychology is the scientific study of thinking, emotion, and behavior. It is a diverse field, and can be applied to almost all aspects of everyday life: interpersonal relationships, school and lifelong learning, family, and the work environment. Psychology uses scientific research methods to develop and test theories, and to explain or predict behavior. Undergraduate study in psychology provides a broad coverage of the field; whereas graduate study focuses more narrowly on a particular discipline, preparing students for professional work as researchers and/or practitioners.

The Psychology Department offers a B.S. or B.A. in psychology. The degree requires students to take a wide variety of courses in areas such as developmental processes, social psychology, learning and memory, personality, clinical psychology, biological processes, and sensation/perception. Depending on their interests, students also select from more specialized subjects such as human factors, industrial/organizational psychology, aging, and the psychology of emotion.

In conjunction with the degree course work requirements, students in the undergraduate program are encouraged to select one of four tracks or emphases depending on their postgraduate goals. A Liberal Arts Track is available for students who wish to obtain a broad background in psychology without specializing in any particular subdiscipline of psychology. Its diversity gives students a flexible background for postgraduate careers. This track is often combined with a major or minor in another academic discipline. The Job Skills Track is designed for students who wish to earn a B.S. or B.A. with more specific skills and knowledge relevant to a particular area of psychology, such as clinical/counseling, industrial/organizational psychology, or human factors. The Pre-graduate School Track is a package of recommended course work and other guidelines developed to enhance a student's preparation for graduate education in psychology. Finally, the Pre-professional Track is a set of guidelines designed for students who are interested in pursuing law, dental, or medical school. As part of all these tracks, students are encouraged to participate in research projects, internships, and teaching experiences to enhance their education.

Graduate training in the Psychology Department prepares students for careers in government and industry, teaching at the junior college level, or for continued study elsewhere at the doctoral level. The department offers an M.S. in psychology with an emphasis in either human factors psychology or industrial/organizational psychology. The intent of both emphases is to develop knowledge and skills germane to a professional position, and to provide appropriate preparation for those interested in further graduate study. Both human factors and industrial/organizational psychology emphases can be taken as thesis or nonthesis options. Occasionally, the department will accept applicants for the general experimental psychology M.S. Students interested in this option should contact the department for more information.

An applicant to the graduate program must possess an undergraduate degree in psychology or a related field, such as engineering, computer science, or business. In addition, applicants are required to have completed a course in introductory statistics, a course in experimental psychology or research methods, and a course in computer programming. Students wishing to emphasize human factors are required to have taken upper-level courses in cognitive psychology and sensation/perception; students wishing to emphasize industrial/organizational psychology are required to have taken upper-level courses in social psychology, I/O psychology, and tests and measurement.

## Courses

See part 6 for courses in Psychology (Psyc).

## Undergraduate Curricular Requirements

### PSYCHOLOGY (B.A. or B.S.)

Note: Psyc 101 and Psyc 218 must be completed with a grade of C or better and a minimum cumulative GPA of 2.50 must be attained for students seeking upper-division standing in the department. In order to graduate with a degree in psychology, a 2.50 GPA must be attained.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Psyc 101 Introduction to Psychology (3 cr)
Psyc 218 Introduction to Research in the Behavioral Sciences (4 cr)
Biol 102 Biology and Society or Biol 112 Biological Principles and Mechanisms (4 cr)
CS 101 Intro to Computer Science or 112 Intro to Problem Solving and Programming (3 cr)
Stat 251 Principles of Statistics (3 cr)

A grade of C or above in at least three courses from each of the following two groups (18 cr):

Personal/Social Bases of Behavior
- Psyc 305 Developmental Psychology
- Psyc 310 Psychology of Personality
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology

Biological/Experimental Bases of Behavior
- Psyc 325 Cognitive Psychology
- Psyc 372 Physiological Psychology
- Psyc 390 Psychology of Learning
- Psyc 430 Tests and Measurements
- Psyc 444 Sensation and Perception
- Psyc 456 Psychology of Emotion

At least 12 additional upper-division psychology credits. Only 3 of these credits may come from Psyc 400, 497, 498, and/or 499. A grade of C or better must be earned in each course taken to complete this category.

## Academic Minor Requirements

### PSYCHOLOGY MINOR

Note: Psyc 101 and Psyc 218 must be completed with a grade of C or better.

Psyc 101 Introduction to Psychology (3 cr)
Psyc 218 Introduction to Research in the Behavioral Sciences (4 cr)

A grade of C or above in at least two courses from each of the following groups (12 cr):

Personal/Social Bases of Behavior
- Psyc 305 Developmental Psychology
- Psyc 310 Psychology of Personality
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology

Biological/Experimental Bases of Behavior
- Psyc 325 Cognitive Psychology
- Psyc 372 Physiological Psychology
- Psyc 390 Psychology of Learning
- Psyc 430 Tests and Measurements
- Psyc 444 Sensation and Perception
- Psyc 456 Psychology of Emotion

And a grade of C or better in at least one additional upper-division psychology course (not including Psyc 400, 403, 497, or 499).

## Graduate Degree Program

In addition to the admission requirements of the Graduate College, the department requires Graduate Record Examination scores, letters of recommendation, and a brief essay regarding plans for graduate study and professional career. The undergraduate degree need not be in psychology, although at least a minor in psychology is desirable. In the event the student has a minimal background in psychology, this deficiency may be remedied by enrolling in certain undergraduate courses that would not necessarily be included in the graduate study plan.

The study program for each student is prepared with his or her future plans as a point of departure. Some students seek the master's degree as a terminal degree and assume positions in community mental health organizations, school systems, or industry, while others continue in doctoral studies.

Research opportunities in the department are many. Students are encouraged to begin research early in their graduate study under the direction of a major professor of mutual choice.

Students admitted to this program must fulfill the requirements of the College of Graduate Studies and of the Department of Psychology. See the College of Graduate Studies section of part 4 for the general requirements applicable to all M.S. degrees.

# Department of Rangeland Ecology and Management

**Kendall L. Johnson, Dept. Head (205B CNR Bldg. 83844-1135; phone 208/885-6536).** ***Faculty:*** **Jeffrey H. Braatne, Stephen C. Bunting, Kendall L. Johnson, James L. Kingery, Karen L. Launchbaugh, Ronald Robberecht, Kenneth D. Sanders.**

The western half of the continent is dominated by vegetation that is predominantly grasses, grass-like plants, forbs, or shrubs, collectively known as rangeland. This kind of land can also be described in more specific terms, such as prairie, plains, grassland, shrubland, savanna, steppe, desert, semidesert, sward, tundra, and alpine. Such lands occupy about 47 percent of the global land area and roughly a third of the United States. Idaho's rangelands, however, comprise nearly 70 percent of the total land area of the state, thus emphasizing the geographic and economic importance of these lands to the citizens of Idaho.

Rangelands serve a variety of uses necessary to maintain and enhance the nation's productive capacity and quality of life. Among them are habitat for many species of plants and animals, many different minerals for industrial uses, forage for domestic livestock and wildlife species, water for domestic, agricultural, and industrial uses, and a broad spectrum of outdoor recreational activities, open space, and natural beauty. Sound management of rangelands based on ecological principles is required if society is to gain the full measure of products, benefits, and values that these resources offer.

The Department of Rangeland Ecology and Management in the College of Natural Resources offers a program leading to the degree of Bachelor of Science in Rangeland Ecology and Management. The rangeland ecology and management curriculum at UI prepares students for the scientific management of rangelands within a variety of career opportunities. In addition, the range program provides ample opportunity for students to broaden their knowledge and skills in other areas of natural resource management, such as fish and wildlife, forestry, watershed, recreation, soils, agricultural economics, and animal science. Field study and evaluation of plant and animal communities are integral parts of the curriculum in rangeland ecology and management. Internships with public land management agencies and private livestock enterprises add to the educational opportunities in the program. Modern library and computer facilities also enhance the teaching and learning processes available to students.

Because of the extent, character, and importance of Idaho's rangelands, excellent opportunities exist for graduate study in all phases of rangeland use and management. The Forest, Wildlife and Range Experiment Station of the college sponsors and funds research in rangeland ecology and management as well as in other disciplines within the college. Cooperative research programs exist and are funded by the College of Agriculture, Agricultural Research Service, U.S. Forest Service, Bureau of Land Management, Idaho Cooperative Park Studies Unit, timber companies, and the livestock industry. All faculty members have teaching or service responsibilities as well as research activities.

Graduate students may earn the degree of Master of Science in Rangeland Ecology and Management in the department and the Doctor of Philosophy degree in the college with a major in natural resources. Admission for graduate study normally requires completion of course work equivalent or similar to that required for the undergraduate curriculum in rangeland ecology and management. Students with different backgrounds may be admitted if deficiencies can be corrected in a reasonable time. The graduate program allows for diversity in a variety of fields such as rangeland ecology, wildlife, animal science, soils, agricultural economics, forestry, and others.

Prospective students in rangeland ecology and management are urged to contact the departmental office for further information (208/885-6536).

## Courses

See part 6 for courses in Rangeland Ecology and Management (Rnge).

## Undergraduate Curricular Requirements

### RANGELAND ECOLOGY AND MANAGEMENT (B.S.Rangeland Ecol.-Mgt.)

Required course work includes the university requirements (see regulation J-3) and:

**First and Second Years**

Rnge 200 Seminar (1 cr)
Rnge/WLF/For 221 Natural Resources Ecology (3 cr)
Rnge 251 Principles of Range Resources Management (2 cr)
Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)

Econ 201, 202 Principles of Economics (6 cr)
For/RRT 235 Society and Natural Resources (3 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Stat 251 Principles of Statistics (3 cr)

**Summer Session**

For/Rnge/WLF/RRT/Fish/ForP 302 Wildland Field Ecology (2 cr)

**Third and Fourth Years**

Rnge 353 Rangeland Plant Identification and Ecology (3 cr)
Rnge 354 Wildland Vegetation Management and Restoration (3 cr)
Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
Rnge 456 Integrated Rangeland Management (3 cr)
Rnge 459 Rangeland Ecology (3 cr)
Biol 341 Systematic Botany (3 cr)
Engl 317 Technical Writing or Engl 313 Business Writing (3 cr)
For/Rnge/WLF/Fish/RRT/ForP 470 Interdisciplinary Natural Resource Planning (3 cr)
Geog 385 GIS Primer (3 cr)
Soil 454 Soil Development and Classification (3 cr)

And one of the following options:

**A. RANGELAND ECOLOGY OPTION**

**First and Second Years**

Math 160 Survey of Calculus or Math 170 Analytical Geometry and Calculus I (4 cr)
Two of the following courses (4-6 cr):
- Fish/WLF 290 Fish and Wildlife Ecology, Mgt, and Conservation (3 cr)
- For 270 Prin of Forest Ecosystem Management or ForP 250 Prin of Forest Products (2 cr)
- RRT 287 Professional Foundations of Resource Recreation and Tourism (3 cr)

**Third and Fourth Years**

Rnge 352 Natural History of Rangelands (3 cr)
Rnge 430 Riparian Ecology and Management (2 cr)
Restricted electives selected from the following (20 cr):
- Biol 210 Genetics (4 cr) or Gene 314 General Genetics (3 cr)
- Biol 421 Advanced Evolution/Population Dynamics (3 cr)
- Biol 431 Landscape and Community Ecology (3 cr)
- Biol 415, 436 Plant Environmental Biophysics and Lab (3 cr)
- Ent 447 Fundamentals of Biological Control (2 cr)
- Ent 451 Applied Biological Control: Weeds (1 cr)
- Ent 491 Principles of Insect Pest Management (3 cr)
- EnvS 528 Pollution Prevention (3 cr)
- Fish 314 Fish Ecology (3 cr)
- Fish 415/Biol 435 Limnology (4 cr)
- For 330 Forest Ecosystem Processes (3 cr)
- For 423 Forest Community Ecology (1 cr)
- For 424 Silviculture II (2 cr)
- For 426 Wildland Fire Management and Ecology (3 cr)
- For 462 Watershed Management (2 cr)
- For 465 Forest Protection (2 cr)
- Geog 301 Meteorology (3 cr)
- Geog 315 Geomorphology (3 cr)
- Geog 401 Climatology (3 cr)
- Geol 336 Processes in Glacial and Periglacial Environments (3 cr)
- Geol 361 Geology and the Environment (3 cr)
- Geol 405 Earth Sciences (3 cr)
- PlSc 410 Biology of Weeds (3 cr)
- Rnge 454 Rangeland Weed Management (3 cr)
- Rnge 497 Senior Research and Thesis (3 cr)
- Soil 422 Environmental Soil Chemistry (3 cr)
- Soil 425 Microbial Ecology (3 cr)
- Soil 437 Soil Biology (3 cr)
- Soil 438 Pesticides in the Environment (3 cr)
- Soil 446 Soil Fertility (3 cr)
- Stat 401 Statistical Analysis (3 cr)
- Stat 422 Sample Survey Methods (2 cr)
- WLF 314 Wildlife Ecology I (3 cr)

WLF 440 Conservation Biology (3 cr)
WLF 445 Nongame Management (2 cr)
WLF 448 Fish and Wildlife Population Ecology (4 cr)
Electives to total 128 credits for the degree

**B. ENVIRONMENTAL ASSESSMENT OPTION**

**First and Second Years**

Math 160 Survey of Calculus or Math 170 Analytical Geometry and Calculus I (4 cr)
Two of the following courses (4-6 cr):
Fish/WLF 290 Fish and Wildlife Ecology, Mgt, and Conservation (3 cr)
For 270 Prin of Forest Ecosystem Management or ForP 250 Prin of Forest Products (2 cr)
RRT 287 Professional Foundations of Resource Recreation and Tourism (3 cr)

**Third and Fourth Years**

Restricted electives selected from the following (22 cr):
Comm 331 Conflict Management (3 cr)
Comm 332 Communication and the Small Group (3 cr)
Comm 347 Persuasion (3 cr)
Comm 431 Professional Presentation Techniques (3 cr)
CS 371 Expert Systems (3 cr)
Fish 415/Biol 435 Limnology (4 cr)
For 375 Airphoto Interpretation and Mapping (3 cr)
For 394 Quantitative Resource Analysis (3 cr)
ForP 230, 231, and 232 Forest Land Measurements I, II, and III (3 cr total)
Geog 370 Spatial Analysis (3 cr)
Geog 380 Cartography and Graphic Communication (3 cr)
Phil 452 Environmental Philosophy (3 cr)
PlSc 409 Scientific Photography and Data Presentation (1 cr)
Rnge 352 Natural History of Rangelands (3 cr)
Rnge 430 Riparian Ecology and Management (2 cr)
Rnge 497 Senior Research and Thesis (3 cr)
RRT 494 Natural Resource Communication (3 cr)
Stat 401 Statistical Analysis (3 cr)
Stat 422 Sample Survey Methods (2 cr)
WLF 440 Conservation Biology (3 cr)
Electives to total 128 credits for the degree

**C. RANGELAND MANAGEMENT OPTION**

**First and Second Years**

AVS 205 Introduction to Animal Nutrition (3 cr)
Math 143 Pre-calculus Algebra and Analytical Geometry or Math 160 Survey of Calculus or Math 170 Analytical Geometry and Calculus I (4 cr)
Two of the following courses (4-6 cr):
Fish/WLF 290 Fish and Wildlife Ecology, Mgt, and Conservation (3 cr)
For 270 Prin of Forest Ecosystem Management or ForP 250 Prin of Forest Products (2 cr)
RRT 287 Professional Foundations of Resource Recreation and Tourism (3 cr)

**Third and Fourth Years**

Rnge 352 Natural History of Rangelands (3 cr)
Rnge 430 Riparian Ecology and Management (2 cr)
For 383 Econ for Natural Resource Mgrs or BAE 451 Land and Natural Resource Econ (3 cr)
One of the following (2-4 cr):
For 375 Airphoto Interpretation and Mapping (3 cr)
For 462 Watershed Management (2 cr)
ForP 230, 231 Forest Land Measurements I-II and For 274 Forest Measurement Techniques (4 cr)
PlSc 338 Weed Control (3 cr)
PlSc 410 Biology of Weeds (3 cr)
RRT 494 Natural Resources Communications or RRT 387 Environmental and Cultural Interpretation (3 cr)
One of the following (3-4 cr):
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 371 Anatomy and Physiology (4 cr)
AVS 466 Horse Production (3 cr)
AVS 474 Beef Cattle Science (3 cr)
AVS 476 Sheep Science (3 cr)

Electives to total 128 credits for the degree

### RANGE LIVESTOCK MANAGEMENT (B.S.R.L.M.)

The major in range livestock management provides training in animal science with a sound background in the relationship between animals and plants and is intended for students interested in the management or operation of range and pasture beef cattle or sheep operations.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal and Veterinary Orientation or Rnge 200 Seminar (1-2 cr)
AVS 109 The Science of Animals that Serve Humanity (3 cr)
AVS 222 Animal Reproduction and Breeding (4 cr)
AVS 305 Animal Nutrition (4 cr)
AVS 306 Feeds and Ration Formulation (4 cr)
AVS 450 Issues in Animal Agriculture (1 cr)
AVS 452 Physiology of Reproduction (4 cr)
AVS 474 Beef Cattle Science or AVS 476 Sheep Science (3 cr)
ASM 240 Computer Applications in Biological Systems (or advanced placement test by department) (3 cr)
Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 341 Systematic Botany (3 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 275 Carbon Compounds (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 201, 202 Principles of Economics (6 cr)
Engl 317 Technical Writing (3 cr)
For/RRT 235 Society and Natural Resources (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry or Math 160 Survey of Calculus (3-4 cr)
Rnge 221 Natural Resources Ecology (3 cr)
Rnge 251 Principles of Range Resources Management (2 cr)
Rnge 352 Natural History of Rangelands (3 cr)
Rnge 354 Wildland Vegetation Management and Restoration (3 cr)
Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
Rnge 430 Riparian Ecology and Management (2 cr)
Rnge 456 Integrated Rangeland Management (3 cr)
Rnge 459 Rangeland Ecology (3 cr)
Soil 205, 206 General Soils and Lab (4 cr)
Stat 251 Principles of Statistics (3 cr)
Courses selected from the following (a minimum of 3 cr in each college) (8 cr):
- AVS 218 Artificial Insemination and Pregnancy Detection (2 cr)
- AVS 263 Live Animal and Carcass Evaluation (3 cr)
- AVS 330 Genetics of Farm Animals (3 cr)
- AVS 371 Anatomy and Physiology (4 cr)
- AVS 411 Ruminant Nutrition (3 cr)
- AVS 466 Horse Production (3 cr)
- AVS 476 or 474 (if not taken above) (3 cr)
- Fish/WLF 290 Fish and Wildlife Ecology, Mgt, and Conservation (3 cr)
- For 270 Principles of Forest Ecosystem Mgt (2 cr)
- Rnge 353 Rangeland Plant Identification and Ecology (3 cr)
- Rnge 454 Rangeland Weed Management (3 cr)
- RRT 287 Professional Foundations of Resource Recreation and Tourism (3 cr)

Electives to total 132 cr for the degree

### NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Natural Resources" above.

## Academic Minor Requirements

### RANGELAND ECOLOGY AND MANAGEMENT MINOR

Rnge 221 Natural Resources Ecology (3 cr)
Rnge 251 Principles of Range Resources Management (2 cr)
Rnge 353 Rangeland Plant Identification and Ecology (3 cr)
Rnge 459 Rangeland Ecology (3 cr)

Two of the following courses (5-6 cr):
- Rnge 352 Natural History of Rangelands (3 cr)
- Rnge 354 Wildland Vegetation Management and Restoration or Rnge 440 Wildland Restoration Ecology (3 cr)
- Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)
- Rnge 430 Riparian Ecology and Management (2 cr)
- Rnge 456 Integrated Rangeland Management (3 cr)

One of the following courses (or a course not chosen above) (2-3 cr):
- AVS 474 Beef Cattle Science (3 cr)
- AVS 476 Sheep Science (3 cr)
- For 426 Wildland Fire Management and Ecology (3 cr)
- For 462 Watershed Management (2 cr)
- PlSc 338 Weed Control (3 cr)
- PlSc 410 Biology of Weeds (3 cr)
- Rnge 454 Rangeland Week Management (3 cr)
- Soil 454 Soil Development and Classification (3 cr)
- WLF 290 Fish and Wildlife Ecology, Management, and Conservation (3 cr)
- WLF 314 Wildlife Ecology I (3 cr)

## Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Natural Resources See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** Thesis and nonthesis options are offered. (A) Thesis option: General M.S. requirements apply except that the thesis requirements may be fulfilled by a publication(s) at the discretion of the candidate's supervisory committee. (B) Nonthesis option: General M.S. requirements apply. A written and/or oral examination that covers graduate course work must be taken during the final semester in residence. One or more professional papers may be required at the discretion of the candidate's supervisory committee. The nonthesis degree is designed primarily for candidates with background experience in some area of range resource use or management.

**Doctor of Philosophy.** The Ph.D. degree is available with a major in natural resources. General Ph.D. requirements apply; see the NR section for details.

# Religious Studies

**Nicholas F. Gier, Coordinator (403 Morrill Hall 83844-3016; phone 208/885-6284).** ***Faculty:*** **Janice Capel Anderson, Ginna M. Babcock, Nicholas F. Gier, Walter A. Hesford, Ellen E. Kittell, Cecelia E. Luschnig, Kerry E. McKeever, Louis A. Perraud, Laura Putsche.** ***Affiliate Faculty:*** **Ken W. Clark, Kip W. Jenkins, Sharon Kehoe.**

The academic study of religion has deep roots in Western intellectual history. One cannot adequately grasp the full dynamics of world culture without attending to the role of religion. In the last hundred years scholars in the West have paid increasing attention to non-Western religions and to the category of "religion" itself as a dimension of human experience.

Religious studies courses do not encourage or discourage religious belief; rather, they engage in the academic study of religion as a crucial element of human culture. Religious studies employs a variety of methods including anthropological, sociological, historical, philosophical, phenomenological, literary, and linguistic approaches. The principal goal of religious studies is submitting sacred texts and traditions to descriptive, analytical, critical, and empathetic scrutiny.

In terms of employment potential, a religious studies minor primarily serves a student in the same way that history or philosophy might. It increases a student's understanding of persons and cultures. Key liberal arts skills in close reading, analysis, research, and oral and written communication are central to religious studies. Some students will use religious studies to enhance their chances of acceptance in graduate programs in areas such as anthropology, sociology, social work, international relations, history, or various area studies. Others may use the minor as a broadly based stepping stone for professional training in theological seminaries or rabbinical schools.

## Courses

See Part 6 for courses in Religious Studies (RelS).

## Academic Minor Requirements

### RELIGIOUS STUDIES MINOR

Courses in religious traditions chosen from the following (at least 3 cr in Asian and Pacific Religious Traditions and at least 3 cr in Western Religious Traditions) (9 cr):

**Asian and Pacific Religious Traditions**

- Hist 180 Introduction to East Asian History
- Hist 483 Traditional Chinese Civilization
- Phil 306 Hindu Thought
- Phil 307 Buddhism
- Phil 308 Confucianism and Taoism
- RelS 204/404 Special Topics related to this category

**Western Religious Traditions**

- Hist 442 The Medieval Church
- Hist 447 The Age of the Renaissance and Reformation
- Phil 302 Biblical Judaism: Texts and Thought
- Phil 303 Early Christianity: Texts and Thought
- RelS 201 Introduction to Islam
- RelS 204/404 Special Topics related to this category
- RelS 321 Twentieth Century Theology

Courses in approaches to religious studies and religion and culture chosen from least 3 cr in Religion and Culture) (9 cr)

**Approaches to Religious Studies**

- Anth 327 Belief Systems
- Engl 375 The Bible as Literature
- Phil 305 Philosophy of Religion
- RelS 101 Introduction to Religious Studies
- RelS 204/404 Special Topics related to this category
- Soc 414 Development of Social Theory

**Religion and Culture**

- Anth 329 North American Indians
- Anth 426 Anthropology of China
- FLEN 211 Classical Mythology (Gods)
- FLEN 212 Classical Mythology (Heroes)
- FLEN 441 Ancient Greek Civilization
- FLEN 442 Civilization of Ancient Rome
- Hist 101-102 History of Civilization
- Hist 457 History of the Middle East
- Phil 240 Belief and Reality

Phil 309 History of Ancient Philosophy
Phil 310 History of Modern Philosophy
Phil 315 Existentialism
RelS 133 Religion and Family
RelS 204/404 Special Topics related to this category
RelS 322 Religious Movements in America

Foreign languages appropriate to the minor are strongly recommended. For example, Japanese or Chinese is recommended for concentration in Asian and Pacific traditions, and Greek or Latin for those focusing on Western traditions.

# Department of Resource Recreation and Tourism

**Steven J. Hollenhorst, Dept. Head (19 CNR Bldg. 83844-1139; phone 208/885-7911; e-mail rrt@uidaho.edu; http://www.its.uidaho.edu/rrt).** ***Faculty:*** **James R. Fazio, Troy E. Hall, Sam H. Ham, Charles C. Harris, John C. Hendee, Steven J. Hollenhorst, Edwin E. Krumpe, William J. McLaughlin, Julia D. Parker, Keith C. Russell, Nick Sanyal.** ***Adjunct Faculty:*** **Gary E. Machlis, Michael R. Whiteman.** ***Affiliate Faculty:*** **Stewart Allen, Scott Bandoroff, James R. Barborak, David N. Cole, Robert Cooley, LuVerne D. Grussing, Jette Hansen-Møller, Bjorn P. Kaltenborn, Kenneth W. Kendall, Craig G. MacFarland, Mary McGown, Richard A. Meganck, Gary M. Stoltz, Douglas G. Wachob, George N. Wallace, Betty Weiler.**

Programs in the Department of Resource Recreation and Tourism involve the study of land and its natural resources, the people who use resources for recreational purposes, and the private and governmental institutions that determine how land will be managed. This discipline is an outgrowth of increasing public interest in outdoor recreation and nature tourism that ranges from wilderness backpacking and river floating to hang-gliding, cruising, and enjoying the comforts of a resort. The ever-increasing variety of demands and conflicts and the growing numbers of tourists in all age and cultural groups has created unprecedented pressures on recreation resources. At the same time outstanding opportunities are being created for the tourism industry. Modern recreation and tourism management attempts to reconcile conflicts and ensure high-quality opportunities of all kinds while at the same time protecting natural, social, and cultural resources for the future.

The educational objective of this curriculum is to provide men and women with the knowledge, skills, and confidence needed to handle a wide array of professional opportunities now available in resource-based recreation and tourism. Students receive a solid educational foundation by studying natural resources and their management. This is coupled with courses in the human dimensions of resource use, including a strong emphasis in communication and business. In addition, experiencing outdoor recreation and tourism is emphasized as well as learning firsthand about its management.

The B.S. in resource recreation and tourism prepares qualified students for advanced degrees in most recreation resource, park and recreation, or tourism graduate programs. Graduates find employment in private businesses; in county, state, and national parks; in educational institutions; and in a variety of resource-management agencies such as the U.S. Forest Service, Bureau of Land Management, National Park Service, and others. Some students combine their education in resource recreation and tourism with a second degree in forest, wildlife, or range management to broaden their employability even further. Still others select a foreign language to prepare for work at the international level.

It is department philosophy that graduates should be prepared for the entire spectrum of resource recreation and tourism career opportunities. Careers, however, usually begin in one of four general areas: environmental communication, wilderness and nature conservation, tourism and leisure enterprises, or outdoor recreation leadership. Students must select one of the department minors from these areas, any other university minor, or develop a block of 12 credits of approved electives to provide depth in an area related to resource recreation and tourism management. Faculty members in the department have been chosen to ensure that students can receive instruction and counsel in the entire spectrum of resource recreation and tourism.

The graduate program in resource recreation and tourism is multidisciplinary and provides students with the opportunity to combine interests in natural resource management and the social sciences. In cooperation with an advisory committee, each student develops a program of studies that supports his or her educational and professional interests. Graduate courses are available in this department and in supporting areas such as forest resources, wildlife management, anthropology, education, communication, political science, sociology, and psychology.

Admission to graduate study normally requires completion of undergraduate course work in the natural and social sciences. Applicants who have completed their undergraduate degrees in fields not closely related to resource recreation and tourism may be required to make up deficiencies as determined by their advisory committees. In addition to the college's application requirements, the Graduate Record Examination (or other accepted graduate examination such as GMAT or LSAT) is required for consideration of all candidates from English-speaking countries. Admission is based on undergraduate grades, evidence of ability to complete graduate-level work, letters of recommendation, examination scores, the compatibility of the student's educational and career objectives with areas of concentration in the department, and the availability of departmental graduate faculty.

For additional information, consult the department head (208/885-7911) or visit the department website, http://www.its.uidaho.edu/rrt.

## Courses

See part 6 for courses in Resource Recreation and Tourism (RRT).

## Undergraduate Curricular Requirements

## RESOURCE RECREATION AND TOURISM (B.S.Res.Rc.)

A total of 128 credits is required for the degree. This includes the university requirements (see regulation J-3), and the course work listed below. Students must select any academic minor (including those in the Department of Resource Recreation and Tourism) or a list of at least 12 credits of electives approved in advance by the advisor to complete credit requirements. Students are also required to do an advisor-approved internship and attend two, two-week long field studies and field ecology courses at the beginning of summer session following their freshman and sophomore years. Special fees are required for these and a few other courses.

**First and Second Years**

RRT/For 235 Society and Natural Resources (3 cr)
RRT 287 Professional Foundations of Resource Recreation and Tourism (3 cr)
RRT/For/Rnge/WLF/Fish/ForP 302 Wildland Field Ecology (2 cr)
RRT 304 Resource Recreation and Tourism Field Studies (3 cr)
RRT 310 Leisure Services Research and Evaluation (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Chem 101 Introduction to Chem I or Chem 111 Principles of Chem I (4 cr)
Comm 101 Fundamentals of Public Speaking or one semester of a foreign language (2-4 cr)
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)
Geol 101 Physical Geology (4 cr)
Math 143 or 160 or 170 (3-4 cr)
PolS 101 Intro to Political Science and American Government (3 cr)
Stat 251 Principles of Statistics or 301 Probability and Statistics (3 cr)
Two of the following (6 cr):
- Anth 100 Introduction to Anthropology
- Psyc 101 Introduction to Psychology
- Soc 101 Introduction to Sociology

Electives or courses in minor (12 cr)

**Third and Fourth Years**

RRT 383 Amenity Resource Economics for Environmental Policymaking (3 cr)
RRT 385 Resource Recreation and Tourism Management (3 cr)
RRT 386 Resource Recreation and Tourism Planning (3 cr)
RRT/For/Rnge/WLF/Fish/ForP 470 Interdisciplinary Natural Resource Planning (3 cr)
RRT 484 Management of Recreation Sites and Leisure Settings (2 cr)
RRT 489 Personalities and Philosophies in Conservation (2 cr)
RRT 494 Natural Resources Communication (3 cr)
RRT 498 Internship (6-9 cr)
Biol 341 Systematic Botany or For 320 Dendrology or LArc 288 Plant Materials I or Rnge 353 Rangeland Plant Ident and Ecology (3 cr)
Econ 202 or 201 Principles of Economics (3 cr)
One writing course, such as Engl 207, 208, 209, 313, 316, 317 (3 cr)
For 375 Airphoto Interpretation and Mapping or LArc/Geog 385 GIS Primer (3 cr)
Any course numbered 300 or above in sociology or psychology or one of the following (3 cr):
- RRT 387 Environmental and Cultural Interpretation
- RRT 486 Public Involvement in Natural Resource Management
- RRT 491 Wilderness Leadership for Personal Growth
- Bus 311 Introduction to Management
- Bus 321 Marketing
- Bus 324 Buyer Behavior
- Bus 427 Services Marketing
- FCS 436 Theories of Child and Family Development
- FCS 440 Contemporary Family Relationships
- FCS 448 Consumer Economic Issues

Electives to total 128 cr for the degree

# Academic Minor Requirements

## ENVIRONMENTAL COMMUNICATION MINOR

Comm 121 Media Writing (3 cr)
RRT 387 Environmental and Cultural Interpretation (3 cr)
RRT 486 Public Involvement in Natural Resource Management (3 cr)
RRT 487 Field Environmental Education (3 cr)
RRT 488 Interpretive Methods Lab or Comm 431 Professional Presentation Techniques (3 cr)
RRT 494 Natural Resources Communication (3 cr)
At least one course from the following (3 cr):
- Comm 252 Principles of Public Relations

Comm 265 Principles of Advertising
Comm 275 Introduction to Video/Television & Digital Media Production
Comm 281 Understanding Photography
Comm 331 Conflict Management
Comm 347 Persuasion
Comm 361 Advertising Creativity
Comm 425 Feature Article Writing

## OUTDOOR RECREATION LEADERSHIP MINOR

Courses selected from the following (12 cr):
H&S 288 First Aid: Emergency Response (2 cr)
Rec 125 Outdoor Leisure Pursuits (2 cr)
Rec 215 River Reading and Whitewater Safety (1 cr)
Rec 254 Camp Leadership (3 cr)
Rec 321 Wilderness Medicine and Evacuation (1 cr)
Rec 420 Experiential Education (2 cr)
Rec 495 Practicum in Tutoring (1 cr)
RRT 287 Professional Foundations in RRT (3 cr)
RRT 387 Environmental/Cultural Interpretation (3 cr)
RRT 401 Practicum in Tutoring (1 cr)
RRT 487 Field Environmental Education (3 cr)
RRT 490 Wilderness Management (3 cr)
RRT 491 Wilderness Leadership for Personal Growth (3 cr)
Courses selected from the following (5 cr):
PEB 106 Individual/Dual Sports: Fly Fishing (1 cr)
PEB 108 Swimming: Scuba (1 cr)
Rec 204 Special Topics course approved by advisor
Rec 220 Rock Climbing (1 cr)
Rec 221 Mountaineering (2 cr)
Rec 222 Cross Country Skiing (1 cr)
Rec 223 Winter Skills (2 cr)
Rec 224 Whitewater Rafting (1 cr)
Rec 225 Kayaking (1 cr)
Rec 226 Whitewater Canoeing (1 cr)
Rec 227 Mountain Biking (2 cr)
Rec 255 Backpacking and Camping Skills (2 cr)
RRT 204 Special Topics course approved by advisor
Technical competency (contact department; practical exam administered by Rec and/or RRT faculty) (max 4 cr)
Rec 320 Outdoor Recreation Leadership (2 cr)

## TOURISM AND LEISURE ENTERPRISES MINOR

Note: This academic minor is offered through both the College of Natural Resources and the College of Education.

Bus 321 Marketing (3 cr)
RRT/Rec 181 Introduction to Hospitality Services Industries (3 cr)
RRT 381/Rec 382 Hospitality Management and Organization (3 cr)
RRT 494 Natural Resources Communication (3 cr)
Rec 340 Leisure and Tourism Enterprises (3 cr)
One course selected from the following (2-3 cr)
RRT 386 Resource Recreation and Tourism Planning
RRT 236/Rec 235 Principles of Tourism
RRT 398 Internship
Rec 204/Rec 280 Special Topics/Practicum
Rec 486 Recreation Program Planning and Marketing I

## WILDERNESS AND NATURE CONSERVATION MINOR

For/Rnge 221 Natural Resources Ecology or a general ecology course or Biol 331 General Ecology or RRT 306 Winter Field Ecology or RRT 302 Wildland Field Ecology (2-3 cr)
RRT 387 Environmental Interpretive Methods (3 cr)
RRT 489 Personalities and Philosophies in Conservation (2 cr)
RRT 490 Wilderness Management (3 cr)
RRT 491 Wilderness Leadership for Personal Growth (3 cr)
RRT 493 International Land Preservation and Conservation Systems (3 cr)
RRT 496 Monitoring Human Impacts in Wilderness (3 cr)

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Natural Resources. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

**Master of Science.** Thesis and nonthesis options are offered. (A) Thesis programs are specifically research oriented and the student is required to conduct independent research and present the results as a thesis, which must be approved by the candidate's supervisory committee. (B) Nonthesis programs are concentrated more on course work. Though research may be conducted, the candidate is not required to present the results in a formal thesis. A final report, professional paper(s), or other terminal project agreed on in advance by the advisory committee is a normal requirement under this plan. This program lends itself to projects such as recreation master plans, regional plans, area management plans, historical reviews, and the development of professional interpretive media. For both the thesis and nonthesis options, after a research or other scholarly project is selected, the student must prepare for his or her committee a formal work plan and make an oral public presentation of the proposed project. The purpose of this requirement is to: (a) help structure and sharpen the student's thinking and approach to the project, (b) obtain the views of various knowledgeable persons that may lead to constructive modifications in the work plan, (c) gain experience in making professional presentations, and (d) increase communication within the academic community.

**Doctor of Philosophy.** The Ph.D. degree is available with a major in natural resources. General Ph.D. requirements apply; see the NR section for details.

# Department of Sociology, Anthropology, and Justice Studies

**Donald E. Tyler, Dept. Chair (101 Phinney Hall 83844-1110; phone 208/885-6751).**

***Anthropology Faculty:*** **Rodney P. Frey, John A. Mihelich, Laura Putsche, R. Lee Sappington, Donald E. Tyler, Mark S. Warner.**

***Justice Studies Faculty:*** **Eric L. Jensen, Gary E. Reed.**

***Sociology Faculty:*** **Ginna M. Babcock, Eric L. Jensen, Robert G. Martin, John A. Mihelich, Debbie A. Storrs.**

***Adjunct Faculty:*** **Margaret J. Harvey, Alice Pope Barbut, Gary E. Machlis.**

***Affiliate Faculty:*** **Alan G. Marshall, Ronald J. Sipe, Deward E. Walker, Priscilla S. Wegars.**

The department houses the three distinct, but interrelated, disciplines of sociology, anthropology, and justice studies. Students can obtain a B.A. or B.S. degree from any of these disciplines. Students can also pursue a minor in any of these fields as well as a minor in American Indian studies. In general, all of these disciplines provide students with the tools and perspectives necessary to better understand both small and large scale cultures, social issues, and complex societal problems. Graduates of the department work in a wide range of employment fields including social services, social policy research agencies, cultural resource management, law, and the justice system, or pursue advanced degrees.

Sociology is the study of group life. Sociologists investigate the structure of groups, organizations, and societies. The goal is to understand the characteristics, causes, and consequences of human behavior and social relationships in various kinds of groups and settings. Because human behavior is diverse, the field of sociology covers a range of subjects including collective behavior, marriage and family, stratification, race and ethnic relations, gender, aging, and religion, as well as others. The sociology program's strengths include the sociology of the family, applied research, social inequality, and theories of deviant behavior. In addition, the sociology program provides students opportunities to gain practical work experience through the form of internships and service learning.

Anthropology is concerned with the study of human conditions as a part of the natural world, and of cultural patterns that people have developed to adapt to that world. While anthropologists have largely focused on prehistoric and non-western societies and cultures, increasingly they are applying basic concepts and methods to the study of modern, complex societies. The strengths of the anthropology program include historical archaeology and the archaeology and cultural study of the Plateau.

The department offers a separate degree program for students interested in Justice Studies. The major is designed as an interdisciplinary program of study incorporating courses in justice studies, sociology, psychology, and political science. Courses are also offered through a cooperative arrangement with Washington State University. This program provides academic training in preparation for careers throughout the justice system, including justice and social policy research, as well as preparing students for graduate and professional schools. Field experience in the form of internships is available during the student's junior or senior year. The strengths of the justice studies program include juvenile delinquency, applied research, and white collar crime.

The minor in American Indian studies is available through the Department of Sociology, Anthropology, and Justice Studies. In cooperation with regional Indian communities and with other academic departments within the university, the interdisciplinary and experiential curriculum of the American Indian studies minor provides students with a background in the culture, history, and literature of American Indians. It also addresses current American Indian issues.

Graduate study in anthropology is offered through the department in areas such as American Indian studies, prehistoric and historical archaeology, sociocultural anthropology, and physical anthropology. An applicant to the program must hold a bachelor's degree from an accredited college or university and must have a minimum 3.00 overall GPA. An undergraduate major in anthropology is not required. Students who otherwise meet eligibility requirements but who do not have sufficient background in anthropology will be required to take additional undergraduate courses. The number of classes will vary with the degree of deficiency and the student's demonstrated potential for advanced academic work. Preparation in statistics is required and proficiency in one non-English language is strongly recommended. Students with marginal qualifications may be admitted on a provisional status or may be advised to complete a year of undergraduate study in anthropology before being considered for the graduate program. Students with an overall GPA less than 3.00 but greater than 2.80 will be considered on a provisional status if their grades in upper-division classes average 3.00 or better. Students who do not have the required GPA but who have strong recommendations or acceptable professional experience will be considered for the graduate program after completing 12 credits of postbaccalaureate study in upper-division or graduate anthropology courses with A or B grades. Although the department does not require the Graduate Record Examination, applicants with marginal qualifications should take it and submit their score with their application.

The department contains the Laboratory of Anthropology. The laboratory houses collections and provides a laboratory environment for research, teaching, and hands-on experience for students. The laboratory also holds the Archive of Pacific Northwest Anthropology, Archaeological Survey of Idaho Northern Repository, historical and prehistoric archaeological collections, and the Asian American Comparative Collection. The metal cleaning and preservation facilities are among the largest and most modern in the western states. The laboratory publishes the University of Idaho anthropological reports.

Questions concerning courses and degree programs should be addressed to the chair, Department of Sociology/Anthropology/Justice Studies, Moscow, ID 83844-1110 (208/885-6751).

## Courses

See part 6 for courses in Anthropology (Anth), Justice Studies (JS), and Sociology (Soc).

## Undergraduate Curricular Requirements

### ANTHROPOLOGY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Anth 100 Introduction to Anthropology (3 cr)
Anth 220 Peoples of the World (3 cr)
Anth 230 World Prehistory (3 cr)
Anth 231 Introduction to Archaeology (3 cr)
Anth 251 Introduction to Physical Anthropology (3 cr)
Anth 410 Research Methods in Anthropology (3 cr)
Anth 420 Anthropological History and Theory (3 cr)
Anth 428 Social and Political Organization (3 cr)
Anth 441 Intro to Study of Language or 261 Language and Culture or 450 Descriptive Linguistics (3 cr)
Soc 101 Introduction to Sociology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Anthropology electives (upper-division) (15 cr)
Related fields as approved by the department (12 cr)

### CRIME AND JUSTICE STUDIES (B.A. or B.S.)

Note: Crime and justice studies majors must obtain a minimum GPA of 2.50 before they are allowed to take upper-division JS courses.

A total of 60 credits, from the required and elective list, must be completed in order to satisfy the departmental requirements for the crime and justice major.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. or B.S. degree, and:

JS 101 Introduction to the Justice System (3 cr)
JS 320* Police, Society, and Justice or 332* Corrections (3 cr)
JS 401 Justice Policy Issues (3 cr)
JS 422* Inequalities in the Justice System or Soc 322* Racial and Ethnic Relations (3 cr)
JS 425 Criminal Law (3 cr)
Engl 209 Inquiry-Based Writing (3 cr)
PolS 467* Constitutional Law or PolS 468* Civil Liberties or 469* Judicial Process (3 cr)
Soc 101 Introduction to Sociology (3 cr)
Soc 310 Methods of Social Research (3 cr)
Soc 330* Juvenile Delinquency or 331* Criminology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Electives chosen from the following (including 18 upper-division credits excluding internship) (if the student takes JS 498 for 6 cr, he or she needs 21 credits of electives) (27 cr):
- JS 150 Organizational Environment of Criminal Justice
- JS 330 Crime Control Policies
- JS 333 White Collar Crime
- JS 340 Crime, Justice, and the Media
- JS 405 Comparative Criminal Justice Systems
- JS 420 Law of Evidence and Criminal Procedure
- JS 430 Juvenile Justice
- JS 498 Internship in Criminal Justice
- Anth 451 Forensic Anthropology
- H&S 311 Acquaintance Rape
- Phil 434 Philosophy of Law
- PolS 275 American State and Local Government
- PolS 451 Public Administration
- PolS 452 Administrative Law and Regulation
- PolS 454 Public Organization Theory
- PolS 460 Law and Society
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology
- Soc 230 Social Problems

Soc 313 Collective Behavior
Soc 314 Society and Self
Soc 320 Sociology of Substance Abuse
Soc 322 Racial and Ethnic Relations
Soc 324 Sociology of Gender
Soc 423 Social Stratification
Soc 430 Deviance
Soc 434 Family Violence

*May be used as an elective if not counted as required course.

## SOCIOLOGY (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and the following courses (electives must be approved by the student's advisor):

Soc 101 Introduction to Sociology (3 cr)
Soc 230 Social Problems (3 cr)
Soc 310 Methods of Social Research (3 cr)
Soc 322 Racial and Ethnic Relations or 324 Soc of Gender or 423 Social Stratification (3 cr)
Soc 310 Methods of Social Research (3 cr)
Soc 414 Development of Social Theory (3 cr)
Anth 100 Introduction to Anthropology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Sociology electives (upper-division, max 3 cr each for Soc 315 or 498) (21 cr)
Related fields (more common areas incl anthro, econ, geog, hist, political sc, and psych) (18 cr)

Students who wish to emphasize human services add the requirements following the B.S. in sociology below (15 cr).

## SOCIOLOGY (B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and the following courses (electives must be approved by the student's advisor):

Soc 101 Introduction to Sociology (3 cr)
Soc 230 Social Problems (3 cr)
Soc 310 Methods of Social Research (3 cr)
Soc 322 Racial and Ethnic Relations or 324 Soc of Gender or 323 Social Stratification (3 cr)
Soc 414 Development of Social Theory (3 cr)
Anth 100 Introduction to Anthropology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Sociology electives (upper-division, max 3 cr each for Soc 315 or 498) (21 cr)
Related fields (more common areas incl anthro, econ, geog, hist, political sc, and psych) (18 cr)
Two courses from the following (6 cr):
Anth 251 Introduction to Physical Anthropology
Anth 411 Human Evolution
Anth 412 Human Races
Biol 102 Biology and Society
Biol 112 Biological Principles and Mechanisms
Biol 120 Human Anatomy
Biol 210 Genetics
EnvS 101 Introduction to Environmental Science
Math 130 Finite Mathematics
MMBB 154 Introductory Biology of Bacteria and Viruses
Phil 250 Introduction to Philosophy of Science
Stat 401 Statistical Analysis (or advanced statistics course)

Students who wish to emphasize human services add the following requirements:

Soc 240 Introduction to Social Services (3 cr)
Courses chosen from the following (upper-division courses will be applied to the sociology upper-division elective requirement listed above) (12 cr):
Soc 209 Alternatives to Violence (ATV) Training
Soc 315 Community Service Learning
Soc 320 Sociology of Substance Abuse
Soc 325 Sociology of the Family
Soc 330 Juvenile Delinquency
Soc 423 Social Stratification
Soc 431 Personal and Social Issues in Aging
Soc 434 Family Violence
Soc 470 Senior Seminar in Applied Research

Soc 498 Internship

# Academic Minor Requirements

## ANTHROPOLOGY MINOR

Anth 100 Introduction to Anthropology (3 cr)
Two courses from the following (6 cr)
- Anth 220 Peoples of the World
- Anth 230 World Prehistory
- Anth 231 Introduction to Archaeology
- Anth 251 Introduction to Physical Anthropology

Three upper-division anthro courses, incl at least one 400-level course (9 cr)

## CRIME AND JUSTICE STUDIES MINOR

JS 101 Introduction to the Justice System (3 cr)
JS 320 Police, Society and Justice or 332 Corrections (3 cr)
JS 425 Criminal Law (3 cr)
Soc 330 Juvenile Delinquency or 331 Criminology (3 cr)
Three or more of the following to total at least 21 cr for the minor:
- JS 333 White Collar Crime
- JS 340 Crime, Justice, and the Media
- JS 401 Justice Policy Issues
- JS 422 Inequalities in the Justice System
- JS 430 Juvenile Justice
- PolS 467 Constitutional Law
- PolS 468 Civil Liberties
- PolS 469 Judicial Process
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology
- Soc 314 Society and Self
- Soc 322 Racial and Ethnic Relations
- Soc 324 Sociology of Gender
- Soc 434 Family Violence

## SOCIOLOGY MINOR

Soc 101 Introduction to Sociology (3 cr)
Soc 230 Social Problems or 220 Marriage and the Family (3 cr)
Soc 310 Methods of Social Research or research methods course acceptable to student's major field (3 cr)
Sociology electives (9 cr must be in upper-division courses) (12 cr)

# Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Sociology/Anthropology/Justice Studies. See the College of Graduate Studies section of part 4 for the general requirements applicable to each M.A. degree.

Only the thesis option for the M.A. degree in anthropology is available. Course work will include either 30 credits plus a foreign language proficiency examination or 36 credits and no foreign language requirement. Students who as undergraduates did not take at least one course in each of the four subfields of anthropology and a course in statistics will be asked to do so (in consultation with an advisor) at the beginning of their graduate programs. No graduate credit will be awarded for courses taken to satisfy such deficiencies. Graduate students must demonstrate competence in each of the four subfields of anthropology. The M.A. core along with the expected undergraduate preparation (or courses taken as deficiencies as a graduate student) are designed for this purpose. The core of the M.A. program consists of Anth 510, 511, 521, and 530. Students who have already received credit for 410, 411, or 430 will substitute appropriate courses for 510, 511, or 530 with approval from the student's advisor. The remaining credits will be distributed among courses in supporting fields (at least 6) and anthropology electives. Both the 30- and 36-credit M.A. program must include at least 6 but no more than 10 thesis credits, although more than 10 credits of thesis may be taken. A minimum of 18 credits must be at the 500 level. Anthropology courses must be at the 400 or 500 level, while supporting courses can include 300 level. No more than 12 credits can be transferred from other institutions and an official copy of the student's transcripts from each institution must be on file in the Registrar's Office. Such institutions must have a graduate program and the work taken for graduate credit.

# Division of Statistics

**Christopher J. Williams, Interim Division Director (415A Carol Ryrie Brink Hall 83844-1104; phone 208/885-2929).** ***Faculty:*** **C. Randall Byers, Raymond Dacey, Brian C. Dennis, Edward O. Garton, Joel R. Hamilton, Timothy R. Johnson, Paul Joyce, John J. Lawrence, Stephen S. Lee, R. Ashley Lyman, Kenneth B. Newman, Bahman Shafii, R. Kirk Steinhorst, Christopher J. Williams.**

Statistics encompasses course work in designing and analyzing experiments, planning and interpreting surveys, and exploring relationships among variables observed on social, physical, and biological phenomena. The applied nature of the program allows the student to develop data analysis tools for such diverse areas as business and economics, crop and animal production, biological sciences, human behavior, education, engineering, and natural resource management. The statistics program thus supports major programs in other disciplines. Within the Department of Mathematics, a statistics option is available under applied mathematics leading to a baccalaureate degree.

Graduate study in statistics is designed for two types of students. Students whose undergraduate degrees are in subject matter disciplines will prepare for a career involving the application of statistical methods to their particular area of interest. Students with degrees in mathematics, computer science, or similar areas will prepare for a career in technical data analysis, statistical computing, and teaching of introductory-level statistics.

All students who wish to do graduate work in statistics should have a background in quantitative methods including Math 275, Analytic Geometry and Calculus III, and 6 hours of statistics including Stat 401 or equivalent. Additionally, students should have knowledge of at least one higher level programming language.

Faculty members in the Division of Statistics will be happy to answer questions about specific programs and courses. Such questions can also be addressed to the division director (Brink 415; telephone 208/885-4410).

## Courses

See part 6 for courses in Statistics (Stat).

## Academic Minor Requirements

### STATISTICS MINOR

Stat 251 Prin of Statistics or 301 Probability and Statistics (3 cr)
Stat 401 Statistical Analysis (3 cr)
Stat 422 Sample Survey Methods (2 cr)
Math 160 Survey of Calculus or 170 Analytic Geometry and Calculus (4 cr)
Math 330 Linear Algebra (3 cr)
Two of the following courses (5-6 cr):
- Stat 433 Econometrics
- Stat 437 Statistics for Business Decisions
- Stat 456 Quality Management
- Stat 514 Nonparametrics
- Math 451 Probability Theory

## Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Statistics. See the College of Graduate Studies section of part 4 for the applicable general requirements for M.S. degree.

An individual graduate program is tailored for the student, but all students must complete a basic core requirement of 15 credits and a thesis. The core requirements are Stat 451-452, 507, 510 (or 533), and 521. A maximum of 6 credits of Stat 500 may be counted toward the degree.

# Division of Teaching, Learning, and Leadership

**George F. Canney, Interim Division Director (404B Educ. Bldg. 83844-3082; 208/885-6587).**

***Elementary and Secondary Teacher Education Faculty:*** **George F. Canney, Carol S. Christy, John Davis, Lydia A. Goellner, Karen P. Guilfoyle, Georgia Johnson, Daniel Kmitta, Sally G. Machlis, Cherie R. Major, Elinor L. Michel, Judith A. Neufeld, Michael R. L. Odell, Melvin J. Pedras, Richard Pollard, Elizabeth L. Reynolds, Frank W. Powers, Barry Willis.**

***Educational Leadership Faculty:*** **Gary C. Alexander, Jack L. Dawson, Gary Delka, Francis X. Gallant, Mary E. Gardiner, Russell A. Joki, Carolyn Keeler, Michael E. Tomlin.**

***Special Education Faculty:*** **Cindy S. Marble, Coord. (405A Education 83844-3082; phone 208/885-7803), Diane M. J. Baumgart, Julie A. Fodor, Jeanne Christiansen, N. Dale Gentry, Teresa S. Jentsch, Cindy S. Marble, Jennifer J. Olson.**

The Division of Teaching, Learning, and Leadership includes programs for elementary and secondary education, educational leadership, and special education.

The professional degree majors in teaching, learning, and leadership provide knowledge, skills, and experiences to enable teachers, administrators, and specialists to work effectively with K-12 students and schools. Students benefit from collaborative relationships and experience with partner schools and agencies.

Pre-service teaching degree majors are offered in elementary, secondary, and special education (B.S.Ed.). Students should consult an advisor concerning requirements for degree and/or certification.

Master's degree majors are offered in curriculum and instruction, special education, and educational leadership (M.Ed., M.S.). Education specialist degrees are offered in curriculum and instruction, special education, higher education and educational leadership. The doctorate is available in education (Ed.D., Ph.D.).

**Elementary and Secondary Teacher Education.** This program includes the university core curriculum, professional education core curriculum, program content courses, and a content concentration. Secondary students select teaching majors and minors from subjects currently taught in secondary schools such as English, social studies, sciences, mathematics, art, and foreign languages. Elementary students select a content concentration in mathematics, science, social science, English/linguistics/literacy, foreign language, health/physical education, arts, or an integrated concentration that meets one of the state endorsement areas. Elementary students receive a B.S.Ed. degree; secondary students may earn a B.S.Ed. degree through the College of Education or a B.A. or B.S. degree through the department and college administering the academic major.

Early and continuous field experiences are a hallmark of the teacher preparation program, which culminates in a full year internship. Program goals include (1) recruitment and retention of high quality students though rigorous admission, continuation, and exit criteria, (2) preparation of teachers in a standards driven, integrated, and field-based program, (3) completion of a full year internship experience where school and university faculty teams work with cohorts of students, and (4) engagement in continuing professional development for students, teachers, and university faculty to improve K-12 student performance.

**Special Education.** The UI undergraduate program in special education prepares students to teach children with cognitive, emotional, language, sensory, and/or physical disabilities at the K-12 level. The program has been designed to be taken in conjunction with an elementary or secondary general education major. Early and continuous field experiences have been developed as part of the special education program to help students make connections between their course work and K-12 classrooms. During the internship year, students gain experience with children in both general and special education programs. In order to avoid conflicts in scheduling, students should begin planning early in their program by consulting with their advisor(s). Upon successful completion of the program, students may be recommended for Idaho certification.

**Graduate Education/Curriculum and Instruction.** The program provides advanced professional and foundational courses that support graduate study in the College of Education. Graduate programs in curriculum and instruction with an emphasis in teacher education include (a) master's degree programs (either Master of Education or Master of Science) in curriculum and instruction including an option for teacher certification; (b) education specialist degree programs in education, with emphases in curriculum and instruction and in supervision and instructional leadership; and (c) doctoral degree programs (either Doctor of Education or Doctor of Philosophy) with emphases in curriculum and instruction, and supervision and instructional leadership.

Persons interested in doctoral work should apply to the College of Education. Admission requirements for the doctoral program include: (a) a minimum grade-point average of 2.80 in undergraduate preparation, (b) a minimum grade-point average of 3.50 at the master's degree level or its equivalent, (c) a composite verbal and quantitative Graduate Record Examination score of at least 1050, and (d) letters of recommendation. Exceptions to the criteria may be made when documented by the Graduate Review Committee.

**Graduate Education/Educational Leadership.** Educational leadership provides programs for the preparation of school administrators and for persons interested in teaching or administration in institutions of higher learning. Master's, education specialist, and doctoral degrees may be earned in the division.

An array of courses that draw on significant research and practice in leadership, management, and the supervision of instruction are offered. The preparation for prospective school principals includes courses in personnel administration, the principalship, research interpretation and use, the organization and administration of schools in America, supervision, school law, curriculum design, and interpersonal relations. Certification as a school principal accompanies successful completion of master's degree requirements in school administration.

At the education specialist degree level, the training emphasis is focused on superintendent certification for students who have master's degrees in administration. Students with master's degrees in related fields may achieve principal certification with an education specialist degree. The education specialist degree further expands leadership training in school/community relations, school facilities planning, school finance, curriculum evaluation, and theory in administration. Persons seeking certification in these programs must also complete an administrative internship for two semesters. All certification and degree programs require comprehensive examinations.

At the doctoral level (Ed.D. or Ph.D.), individualized programs may be directed to administration or teaching in higher education or toward significant leadership positions in public schools and other related agencies.

**Graduate Education/Special Education.** At the master's level, the program emphasizes preparation in general special education, low incidence (severe) disabilities, early childhood special education, program administration and consultation. The education specialist degree is designed to prepare personnel in the consulting, supervisory, and administrative competencies needed for leadership roles in public school special education programs. The doctoral program prepares special educators for positions of leadership in schools, state agencies, colleges, and universities. Major emphasis is placed on research, university level teaching, and systems change. Specialized endorsements may be obtained in the areas of general special education, severe disabilities, early childhood special education, consulting teacher, and special education director.

## Courses

See Part 6 for courses in Educational Administration (EdAd), Library Science (LibS), Special Education (EDSP), and Teacher Education (EDTE).

## Undergraduate Curricular Requirements

Note: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a cumulative GPA of 2.75. For admission criteria, refer to “Admission to the Teacher Education Program” in the College of Education section in Part 4.

### ELEMENTARY EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3), completion of the Idaho Technology Performance Assessment and the following course requirements:

Comm 101 Fundamentals of Public Speaking (2 cr)
Ed 201 Diverse Learners in Schools and Social/Cultural Contexts (3 cr)
Ed 301 Principles of Learning and Development in Education (3 cr)
Ed 302 Curriculum, Instruction, and Assessment Strategies (3 cr)
Ed 401 Professional Role Development (3 cr)
EDTE 320 Foundations of Literacy Development (4 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Hist 101 or 102 History of Western Civilization (3 cr)
Hist 111 or 112 Intro to U.S. History (3 cr)
INTR 103 Integrated Science for Elementary Education Majors (4 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 235 Mathematics for Elementary Teachers I (3 cr)
Math 236 Mathematics for Elementary Teachers II (3 cr)
Psyc 305 Developmental Psychology (3 cr)
Advanced composition elective (Engl 207, 208, 209, 291, 292,309,313, 317 or 401) (3 cr)
Art elective (non-methods course) (2 cr)
Earth science or physical science elective (4 cr)
English elective in composition or literature (excluding Engl 101 and 102) (3 cr)
Life science elective (4 cr)
Literature elective (3 cr)
Music elective (non-methods course) (2 cr)
Social science electives other than psychology (6 cr)

### Elementary Education Major Requirements

Mathematics/Science/Social Studies/Physical Education Block:
- EDTE 327 Elementary Mathematics Education (2 cr)
- EDTE 328 Elementary Social Studies Education (2 cr)

EDTE 329 Elementary Science Education (2 cr)
PEP 350 Elementary Physical and Health Education (2 cr)

Literacy/Arts Education Block:
EDTE 321 Literature for Children (2 cr)
EDTE 322 Integrated Language and Literacy (2 cr)
EDTE 325 Elementary Art Education (2 cr)
Dan 360 Children's Dance (1 cr)
MusT 381 Elementary School Music Methods for Nonmajors (1 cr)
TheA 404 ST:Drama in the Classroom (1 cr)

Internship Year:
ED 401 Professional Role Development (3 cr)
EDTE 423 Integrated Literacy in the Classroom (1 cr)
EDTE 425 Elementary Art in the Classroom (1 cr)
EDTE 427 Elementary Mathematics in the Classroom (1 cr)
EDTE 428 Elementary Social Studies in the Classroom (1 cr)
EDTE 429 Elementary Science in the Classroom (1 cr)
EDTE 466 Literacy Assessment and Intervention (3 cr)
EDTE 484 Elementary Internship (14-28 cr)
PEP 450 Elementary Physical Education and Health in the Schools (1 cr)

Content Concentration
Elementary majors will be required to select one of several content concentration areas (18-21 credits). Information about the concentration areas is available from the Division of Teaching, Learning, and Leadership.

The minimum number of credits required for the degree is 128.

### SECONDARY EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3); completion of the Idaho Technology Performance Assessment; one 45-credit teaching major or one 30-credit teaching major and one 20-credit teaching minor (see "Teaching Majors and Minors" below); and the following course requirements:

Advanced composition course (Engl 207, 208, 209, 291, 292, 309, 313, 317 or 401) (3 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Ed 201 Diverse Learners in Schools and Social/Cultural Contexts (3)
Ed 301 Principles of Learning and Development in Education(3)
Ed 302 Curriculum, Instruction, and Assessment Strategies (3)
Ed 401 Professional Role Development (3)
EDTE 463 Literacy Methods for Content Learning (3)
EDTE 485 Secondary Internship (14-28 cr)
Engl 102 College Writing and Rhetoric (3 cr)
Mathematics elective (math or statistics UI core course) (3 cr)
Psyc 101 Intro to Psychology or Psyc 305 Developmental Psychology
Special methods sequence (EDTE 437/447, 440/441, 432/442, 433/443, 434/454, or 436/446) (4 cr)

### SPECIAL EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3), the requirements for students preparing to teach at the elementary and/or secondary level (see the elementary and secondary education major requirements in this section); the completion of the Idaho Technology Performance Assessment; and the following courses (which will qualify the student for the Exceptional Child Certificate and Generalist K-12 endorsement):

EDSP 325 Classroom Application of Learning Theories (2 cr)
EDSP 326 Students with Behavioral and Emotional Issues (2 cr)
EDSP 350 Languages and Communication Development and Disorders (3 cr)
EDSP 351 Family and Community Involvement (2 cr)
EDSP 390 Special Education/Field Experience (2-3 cr)
EDSP 425 Evaluation of Children and Youth (2 cr)
EDSP 426 Developing Instructional Programs (2 cr)
EDSP 427 Curriculum Development and Adaptation (3 cr)
EDSP 428 Issues in Secondary Special Education (2 cr)
EDSP 484 Special Education Internship (14 cr)

## Teaching Majors and Minors

One option required from the following:

One 45-credit teaching major
One 30-credit teaching major and one 20-credit teaching minor

The various teaching majors and teaching minors required to accompany several of the curricula are outlined below. Because the College of Education reserves the right to approve or disapprove the content of all proposed majors and minors, students should confer closely with their college advisors and with advisors in the academic department concerned in the selection of these courses.

## ART

An academic major in Art Education is also offered in the major curriculum leading to the degree of B.S.Art Ed. (see Department of Art in Part 5).

**A. 45-CREDIT ART TEACHING MAJOR**

Special methods sequence
EDTE 436 Secondary Art Methods I (2 cr)
EDTE 446 Secondary Art Methods II (2 cr)

Art 100 Visual Art (3 cr)
Art 110 Visual Communication (2 cr)
Art 111-112 Drawing I-II (5 cr)
Art 121-122 Visual Communication and the Design Process (5 cr)
Art 301 History of Art: 19th Century (3 cr)
Art 302 History of Art: 20th Century (3 cr)
Courses selected from the following (18 cr):
Art 211 Drawing III
Art 214 Textile Design I
Art 221 Graphic Design I
Art 231 Painting I
Art 241 Sculpture I
Art 251 Printmaking I
Art 261 Ceramics I
Art 271 Interface Design I
Art 281 Watercolor I
Comm 281 Understanding Photography
Two art studio courses from the following: (Art 311, 314, 321, 331, 341, 351, 361, 371, 391, 392) (6 cr)

**B. 21-CREDIT ART TEACHING MINOR**

Art 100 Visual Art (3 cr)
Art 110 Visual Communication (2 cr)
Art 111-112 Drawing I-II (5 cr)
Art 121-122 Visual Communication and the Design Process (5 cr)
Courses selected from Art 211, 214, 221, 231, 241, 251, 261, 271, 281, Comm 281, or Art 311, 314, 321, 331, 341, 351, 361, 371, 391, 392 (6 cr)

## BIOLOGICAL SCIENCES

Note: Math 143 is a prerequisite to required physics courses. A grade of "D" in any of the required courses listed below will not count toward completion of the degree in either the 62-credit composite teaching major or the 24-credit composite teaching minor.

**A. 62-CREDIT COMPOSITE TEACHING MAJOR**

Special methods sequence
EDTE 433 Secondary Science Methods I (2 cr)
EDTE 443 Secondary Science Methods II (2 cr)

Biol 111 Evolution and Diversity of Life (4cr)
Biol 112 Biological Principles and Mechanisms (4cr)
Biol 210 Genetics (4 cr)
Biol 212 Molecular and Cellular Biology (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 314 Ecology and Population Biology (4 cr)
Biol 411 Senior Capstone (2 cr)
Chem 111 Principles of Chemistry or 101 Introduction to Chemistry (4 cr)
Chem 275 Carbon Compounds or Chem 277 Organic Chemistry I (3 cr)
Geog 100 Physical Geography or Geol 101 Physical Geology (4 cr)
MMBB 250 General Microbiology (5 cr)
Phys 111-112 General Physics I-II (8 cr)
Electives (see list of electives for Biology major in Part 5) (12 cr)

**B. 24-CREDIT COMPOSITE TEACHING MINOR**

Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 210 Genetics (4 cr)
Biol 212 Molecular and Cellular Biology (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 314 Ecology and Population Biology (4 cr)

## BUSINESS EDUCATION

**21- OR 23-CREDIT BUSINESS EDUCATION TEACHING MINOR**

BuEd 102 Typewriting II (2 cr)
BuEd 202 Introduction to Business, Marketing, and Economic Ed (2 cr)
BuEd 395 Administrative Office Procedures (3 cr)
BuEd 430 Supervising Business Professionals of America (2 cr)
BuEd 491/492 Teaching Business Education Methods (4-6 cr)
Acct 201 Introduction to Financial Accounting (3 cr)
Bus 101 Introduction to Business Enterprises (3 cr)
Econ 272 Foundations of Economic Analysis (4 cr)

NOTE: This minor will not meet professional-technical certification requirements, but will enable the student to apply for a provisional professional-technical certificate.

Other required courses for professional-technical certification include:

ACTE 444 Diverse Populations and Individual Differences (2-3 cr)
ACTE 457 Transitioning to Work (3 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2-3 cr)
PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)

## CHEMISTRY

Note: See the physics and mathematics prerequisites for the chemistry courses listed below.

**A. 45-CREDIT CHEMISTRY TEACHING MAJOR**

Special methods sequence
EDTE 433 Secondary Science Methods I (2 cr)
EDTE 443 Secondary Science Methods II (2 cr)

Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 253 Quantitative Analysis (5 cr)
Chem 275, 276 Carbon Compounds and Lab and MMBB 380, 382 Intro Biochem and Lab or Chem 277, 278 Organic Chem I and Lab and Chem 372, 376 Organic Chem II and Lab (8-10 cr)
Chem 302, 303 Principles of Physical Chemistry and Lab (4 cr)
Biol 111 Evolution and Diversity of Life (4cr)

Math 170 Analytic Geometry and Calculus I (4 cr)
Phys 111-112 General Physics I-II (8 cr)
Chemistry elective (3 cr)

**B. 21-CREDIT CHEMISTRY TEACHING MINOR**

Chem 111 Prin of Chemistry I or 101 Intro to Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 275, 276 Carbon Compounds and Lab (4 cr)
Chem 302, 303 Principles of Physical Chemistry and Lab (4 cr)
MMBB 380 Introductory Biochemistry (4 cr)

## COMPUTER SCIENCE

Computer science is not an area of endorsement for Idaho certification. Students may complete a teaching minor in computer science only under the 30-20-20 option where the 30 credit major and one of the 20 credit minors are in endorsement areas.

21-CREDIT COMPUTER SCIENCE TEACHING MINOR

CS 112 Introduction to Problem Solving and Programming (3 cr)
CS 113 Program Design and Algorithms (3 cr)
CS 213 Data Structures (3 cr)
CS 245 Computer Organization and Architecture (4 cr)
Math 176 Discrete Mathematics (3 cr)
Electives chosen from the following (5 cr):
- CS 307 History of Calculating and Computing
- CS 310 Computing Languages
- CS 324 Computer Graphics
- CS 381 Software Engineering
- Math 475/CS 495 Analysis of Algorithms
- Math 485/CS 490 Theory of Computation

## CONSUMER ECONOMICS

A teaching major in consumer economics is not offered. To meet both college graduation requirements and state certification requirements, students selecting a teaching minor in consumer economics must have a teaching major in social science, or an academic major in business education, marketing education or child, family and consumer studies to meet both college graduation requirements and state certification requirements.

**20-CREDIT CONSUMER ECONOMICS TEACHING MINOR**

BLaw 265 Legal Environment of Business (3 cr)
BuEd 418 Teaching Consumer Economics (2 cr)
Econ 201, 202 Principles of Economics (6 cr)
FCS 448 Consumer Economic Issues (3 cr)
Electives chosen from the following (6 cr):
- Acct 201 Introduction to Financial Accounting
- Bus 321 Marketing
- Bus 364 Insurance
- Econ 343 Money and Banking
- FCS 123 Textiles
- FCS 346 Personal and Family Finance and Management
- FCS 428 Housing America's Families

## DANCE

**21-CREDIT DANCE TEACHING MINOR**

The dance minor provides broad experiences in techniques, composition, production, and teaching.

Dan 105 Dance (ballet, jazz, modern) (4 cr)
Dan 112 Recreational Dance Forms (2 cr)
Dan 210 Dance Theatre (1 cr)
Dan 321 Dance Pedagogy (3 cr)
Dan 325 Dance Production (3 cr)
Dan 383 Dance Composition (2 cr)
Dan 420 Dance Accompaniment or Dan 320 Labanotation (3 cr)

Dan 421 Dance History (3 cr)

## EARTH SCIENCE

Due to extensive course overlap, earth science majors may NOT select geology as a teaching minor.

**A. 62-CREDIT EARTH SCIENCE TEACHING MAJOR**

Special methods sequence
- EDTE 433 Secondary Science Methods I (2 cr)
- EDTE 443 Secondary Science Methods II (2 cr)

Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms or Biol 203 General Botany (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Geog 100 Physical Geography (4 cr)
Geog 401 Climatology (3 cr)
Geol 101 Physical Geol or Geol 111 Physical Geol for Sc Majors (4 cr)
Geol 102 Historical Geology (4 cr)
Geol 212 Principles of Paleontology (4 cr)
Geol 306 Nature of Earth Materials (3 cr)
Geol 324 Principles of Stratigraphy and Sedimentation (4 cr)
Geol 335 Geomorphology (3 cr)
Geol 405 Earth Sciences (3 cr)
Geol 408 Field Methods in the Earth Sciences (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Phys 103, 104 General Astronomy and Lab (4 cr)
Phys 111-112 General Physics I-II (8 cr)

**B. 45-CREDIT COMPOSITE TEACHING MAJOR**

Special methods sequence
- EDTE 433 Secondary Science Methods I (2 cr)
- EDTE 443 Secondary Science Methods II (2 cr)

Geog 100 Physical Geography (4 cr)
Geog 401 Climatology (3 cr)
Geol 101 Physical Geol or 111 Physical Geol for Sc Majors (4 cr)
Geol 102 Historical Geology (4 cr)
Geol 212 Principles of Paleontology (4 cr)
Geol 306 Nature of Earth Materials (3 cr)
Geol 335 Geomorphology (3 cr)
Geol 405 Earth Sciences (3 cr)
Geol 408 Field Methods in the Earth Sciences (3 cr)
Phys 103, 104 General Astronomy and Lab (4 cr)
Courses selected from the following (6 cr):
- Geog 180 Spatial Graphics
- Geog 380 Cartography and Graphic Communication
- Geol 360 Geologic Hazards
- Geol 361 Geology and the Environment

Approved upper division earth science electives to total 45 credits in the teaching major.

## ECONOMICS

A teaching major in economics is not offered.

**20-CREDIT ECONOMICS TEACHING MINOR**

Econ 201, 202 Principles of Economics (6 cr)
Econ 351 Intermediate Macroeconomic Analysis (3 cr)
Econ 352 Intermediate Microeconomic Analysis (3 cr)
Additional upper-division credits in economics (8 cr)

# ENGLISH

## A. 45-CREDIT ENGLISH TEACHING MAJOR

Special methods sequence
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

Engl 201 English Grammar: Key Concepts and Terms (1 cr)
Engl 210 Reading - Writing - Texts (3 cr)
Engl 291 or 292 Creative Writing Poetry or Fiction (3 cr)
Engl 309 Advanced Prose Writing (3 cr)
Engl 341 or 342 Survey of British Literature (3 cr)
Engl 343-344 Survey of American Literature (6 cr)
Engl 345 Shakespeare (3 cr)
Engl 401 Writing Workshop for Teachers (2 cr)
Engl 403 Teaching Writing in Secondary Schools (taken concurrently with EDTE 485) (3 cr)
Engl 441 Introduction to Study of Language (3 cr)
Engl 445 Literature for Adolescents (3 cr)
Two linguistics courses (Engl 442, 443 or 496; Engl 443 may be taken concurrently with EDTE 485) (6 cr)
One 400-level area literature course (3 cr)
One literature course focusing on multicultural literature (Engl 380, 480, 483, 484; or Engl 295, 404, 481, or 482 when these courses include a major and specific selection of American ethnic literature) (Engl 480 may be taken concurrently with EDTE 485) (3 cr)

## B. 33-CREDIT ENGLISH TEACHING MAJOR

Special methods sequence
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

Engl 201 English Grammar: Key Concepts and Terms (1 cr)
Engl 210 Reading - Writing - Texts (3 cr)
Engl 309 Advanced Prose Writing (3 cr)
Engl 341 or 342 Survey of British Literature (3 cr)
Engl 343-344 Survey of American Literature (6 cr)
Engl 401 Writing Workshop for Teachers (2 cr)
Engl 403 Teaching Writing in Secondary Schools (taken concurrently with EDTE 485) (3 cr)
Engl 441 Introduction to Study of Language (3 cr)
Engl 442 or 443 or 496 Linguistics (3 cr)
Engl 445 Literature for Adolescents (3 cr)
One literature course focusing on multicultural literature (Engl 380, 480, 483, 484; or Engl 295, 404, 481, or 482 when these courses include a major and specific selection of American ethnic literature) (Engl 480 may be taken concurrently with EDTE 485) (3 cr)

## C. 24-CREDIT ENGLISH TEACHING MINOR

Engl 201 English Grammar: Key Concepts and Terms (1 cr)
Engl 210 Reading - Writing - Texts (3 cr)
Engl 309 Advanced Prose Writing (3 cr)
Engl 401 Writing Workshop for Teachers (2 cr)
Engl 403 Teaching Writing in Secondary Schools (taken concurrently with EDTE 485) (3 cr)
Engl 441 Introduction to Study of Language (3 cr)
One survey course in both American literature (Engl 343 or 344) and British literature (Engl 341 or 342); at least one of the two survey courses must be Engl 341 or 343 (6 cr)
One literature course focusing on multicultural literature (Engl 380, 480, 483, 484; or Engl 295, 404, 481, or 482 when these courses include a major and specific selection of American ethnic literature) (Engl 480 may be taken concurrently with EDTE 485) (3 cr)

## D. 33-CREDIT ENGLISH TEACHING MAJOR THROUGH AMERICAN STUDIES

Students complete the College of Letters and Science major in American studies with the following specifications:

Special methods sequence
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

Courses from the American Studies requirements:
Engl 341 or 342--one of the two required courses in English (British) literature (3 cr)
Engl 343-344 Survey of American Literature (6 cr)

Electives in American English, selected from the list of electives in the curricular requirements of the lit emphasis in the American studies major (incl Engl 441 and 3 cr of a literature course with multicultural emphasis) (12 cr)

Courses in addition to those required for the literature emphasis of the American studies major:
Engl 201 English Grammar: Key Concepts and Terms (1 cr)
Engl 210 Reading - Writing - Texts (3 cr)
Engl 309 Advanced Prose Writing (3 cr)
Engl 401 Writing Workshop for Teachers (2 cr)
Engl 403 Teaching Writing in Secondary Schools (taken concurrently with EDTE 485) (3 cr)

## ENGLISH AS A SECOND LANGUAGE

A teaching major in English as a second language is not offered.

**21-CREDIT ENGLISH AS A SECOND LANGUAGE TEACHING MINOR**

Modern foreign language (100-level or above) (4 cr)
Cultural diversity (i.e. Anth 261) (3cr)
ESL methods (i.e. EDTE 474) (3cr)
Theory, philosophical foundations, testing/identification of limited English proficient students, or applied linguistics in ESL (i.e. Engl 441, 442 or 443) (3cr)
Practicum or field experience in ESL (i.e. EDTE 402, EDTE 597, Engl 515) (1cr)
At least one course in English language and linguistics (Engl 441, 442, 443) (3 cr)
Electives to total 21 credits (Anth/Soc 322 Racial and Ethnic Relations is recommended)

## FRENCH

Basic language courses taken in high school or elsewhere may be evaluated for college equivalencies as part of this teaching major and minor. Consult the Department of Foreign Languages and Literatures for policies on earning credit for vertically-related courses.

**A. 45-CREDIT FRENCH TEACHING MAJOR**

Special methods sequence
EDTE 437 Secondary Foreign Language Methods I (2)
EDTE 447 Secondary Foreign Language Methods II (2)

Fren 101-102 Elementary French I-II (8 cr)
Fren 201-202 Intermediate French I-II (8 cr)
Fren 301 Advanced French Grammar (3 cr)
Fren 302 Advanced French Writing Skills (3 cr)
Fren 304 Connecting French Language and Culture (4 cr)
Fren 305 Reading French Texts (3 cr)
Fren 408 Topics in French Culture and Institutions (3 cr)
Fren 449 Practicum in Tutoring (1-2 cr)
Electives chosen from the following (7-10 cr):
Engl 441 Introduction to Study of Language
FLEN 243 English Word Origins
Approved upper-division course in literature
Approved upper-division French electives
Approved upper division French electives to total 45 credits in the teaching major.

**B. 22-CREDIT FRENCH TEACHING MINOR**

Fren 101-102 Elementary French I-II (8 cr)
Fren 201-202 Intermediate French I-II (8 cr)
Approved upper-div French electives (either Fren 301 or 302 is reqd; lab-based and lit in translation courses are not acceptable) (6 cr)

Note: A minor in French of less than 22 credits is not acceptable.

## GEOGRAPHY

**A. 30-CREDIT GEOGRAPHY TEACHING MAJOR**

Special methods sequence
EDTE 432 Secondary Social Science Methods I (2 cr)
EDTE 442 Secondary Social Science Methods II (2 cr)

Geog 100 Physical Geography (4 cr)
Geog 165 Human Geography (3 cr)
Geog 180 Spatial Graphics (3 cr)
Geog 200 World Regional Geography (3 cr)
Geog 330 Urban Geog or 240 Econ Geog or 346 Transportation (3 cr)
Geog 364 Idaho and Pacific Northwest (3 cr)
Geog 385 GIS Primer (3 cr)
Geog 401 Climatology or 360 Population Dynamics and Distribution or 427 Decision Making in Resource Management (3 cr)
Geog 470 Computer Mapping (3 cr)
Additional geography courses to total 30 credits (2 cr)

**B. 22-CREDIT GEOGRAPHY TEACHING MINOR**

Geog 100 Physical Geography (4 cr0
Geog 165 Human Geography (3 cr)
Geog 180 Spatial Graphics (3 cr)
Geog 200 World Regional Geography (3 cr)
Geog 240 Economic Geography (3 cr)
Geog 401 Climatology or 360 Population Dynamics and Distribution or 427 Decision Making in Resource Management (3 cr)
Geog 470 Computer Mapping (3 cr)

## GEOLOGY

A teaching major in geology is not offered.

**20-CREDIT GEOLOGY TEACHING MINOR**

Geol 101 Physical Geology (4 cr)
Geol 102 Historical Geology (4 cr)
Geol 212 Principles of Paleontology (4 cr)
Geol 306 Nature of Earth Materials (3 cr)
Electives chosen from the following (5 cr)
Geol 335 Geomorphology
Geol 345 Structural Geology
Geol 401 Field Geology and Report Writing

## GERMAN

Basic language courses taken in high school or elsewhere may be evaluated for college equivalences as part of this teaching major and minor. Consult the Department of Foreign Languages and Literatures for policies on earning credit for vertically-related courses.

**A. 45-CREDIT GERMAN TEACHING MAJOR**

Special methods sequence
EDTE 437 Secondary Foreign Language Methods I (2)
EDTE 447 Secondary Foreign Language Methods II (2)

Germ 101-102 Elementary German I-II (8 cr)
Germ 201-202 Intermediate German I-II (8 cr)
Germ 321 German Conversation (3 cr0
Germ 322 German Grammar and Composition (3 cr)
Germ 325-326 German Culture and Institutions (6 cr)
Germ 327-328 Survey of German Literature (3-6 cr)
Germ 420 Readings in German Literature (3 cr)
Engl 441 Introduction to Study of Language (3 cr)
Approved upper division German electives to total 45 credits in the teaching major.

**B. 22-CREDIT GERMAN TEACHING MINOR**

Germ 101-102 Elementary German (8 cr)
Germ 201-202 Intermediate German (8 cr)
Approved upper-div German electives (either Germ 321 or 322 is reqd; lab-based and lit in translation courses are not acceptable) (6 cr)

Note: A minor in German of less than 22 credits is not acceptable.

## HEALTH EDUCATION

### 22-CREDIT HEALTH EDUCATION TEACHING MINOR

Students minoring in health education who plan to apply for teacher certification must include a course in anatomy or physiology or general biology or MMBB among the courses they select to meet the general studies requirements. A current advanced first aid and emergency care card is required upon graduation.

FCS 205 Concepts in Human Nutrition or 305 Nutrition Related to Fitness/Sport (3 cr)
FCS 240 Intimate Relationships or Psyc 330 Human Sexuality (3 cr)
H&S 150 Wellness Lifestyles (3 cr)
H&S 288 First Aid: Emergency Response (2 cr)
H&S 289 Drugs in Society (2 cr)
H&S 316 Community and Global Health (2 cr)
H&S 350 Stress Management and Mental Health (2 cr)
H&S 423 Health Education Methods and Administration (3 cr)
H&S 450 Consumer Health and Health Care Issues (2 cr)

## HISTORY

### A. 45-CREDIT HISTORY TEACHING MAJOR

Special methods sequence
EDTE 432 Secondary Social Science Methods I (2 cr)
EDTE 442 Secondary Social Science Methods II (2 cr)

Hist 101-102 History of Civilization (6 cr)
Hist 111-112 Introduction to U.S. History (6 cr)
Hist 290 The Historian's Craft (3 cr)
PolS 101 Introduction to Political Science and American Government (3 cr)
Upper-division history courses including:
Non-regional U.S. history (3 cr)
Latin American history (3 cr)
Asian or African history (3 cr)
Pre-1750 history from any region (3 cr)
American non-European ethnic history (3 cr)
Additional history courses (9 cr)
Approved upper division history electives to total 45 credits in the teaching major.

Note: A single course may satisfy more than one of the upper-division requirements.

### B. 24-CREDIT HISTORY TEACHING MINOR

History courses chosen from the following (9 cr):
Hist 101-102 History of Civilization
Hist 111-112 Introduction to U.S. History
Hist 180 Introduction to East Asian History
Hist 210 Introduction to Modern Latin American History
American government (3 cr)
Upper-division history courses, including at least 3 cr in U.S., Latin American, or African history and at least 3 cr in Ancient European or Asian history (12 cr)

Note: Students must take at least 9 credits in U.S. history, which may include history of a state or region of the U.S.

### C. 33-CREDIT HISTORY TEACHING MAJOR THROUGH AMERICAN STUDIES

American studies majors must take 9 credits in European or Asian history to maintain the required balance of old and new world history, plus 3 credits in American government.

## INDUSTRIAL TECHNOLOGY EDUCATION

### 30-CREDIT INDUSTRIAL TECHNOLOGY EDUCATION TEACHING MINOR

For certification to teach industrial technology education, a teaching minor must contain at least 20 credits, including not less than 15 credits distributed among and including each of the areas of metals, wood, drafting, and electricity-electronics. The remainder may be in allied or related areas. No substitution will be permitted for any of the courses required below.

ITED 120 Principles of Technology (4 cr)

ITED 130 Basic Electronics (4 cr)
ITED 218 Power, Energy, and Transportation Technology Systems (4 cr)
ITED 250 Manufacturing Technology Systems (4 cr)
ITED 265 Computer Aided Drafting/Design (2 cr)
ITED 280 Construction Technology Systems (4 cr)
ITED 328 Computer Operating Systems for Technology (4 cr)
ITED 360 Communication Technology Systems (4 cr)

Other required courses for professional-technical certification include:

ACTE 444 Diverse Populations and Individual Differences (2-3 cr)
ACTE 457 Transitioning to Work (3 cr)
ACTE 460 Using Internet-Based Career Information in the Classroom (2-3 cr)
PTE 351 Principles and Philosophy of Professional-Technical Education (3 cr)

## JOURNALISM

### A. 37-CREDIT JOURNALISM TEACHING MAJOR

Special methods sequence
- EDTE 440 Secondary English Methods I (2 cr)
- EDTE 441 Secondary English Methods II (2 cr)

Comm 112 Media and Society (3 cr)
Comm 121 Media Writing (3 cr)
Comm 225 News Writing (3 cr)
Comm 275 Introduction to Video/Television & Digital Media Production (3 cr)
Comm 281 Understanding Photography (3 cr)
Comm 320 Information Gathering and Reporting (3 cr)
Comm 324 News Editing and Production (3 cr)
Comm 401 Practicum in Communication or 498 Internship (1 cr)
Comm 425 Feature Article Writing (3 cr)
Comm 442 Communication Law and Ethics (3 cr)
Two courses chosen from the following (6 cr)
- Comm 291 Web Communication
- Comm 322 Broadcasting Newswriting/Reporting
- Comm 354 Publications Editing
- Comm 427 Public Affairs Reporting
- Comm 444 Communication and Public Opinion

### B. 21-CREDIT JOURNALISM TEACHING MINOR

Comm 112 Media and Society (3 cr)
Comm 121 Media Writing (3 cr)
Comm 225 News Writing (3 cr)
One course from the following (3 cr):
- Comm 275 Introduction to Video Production
- Comm 281 Understanding Photography
- Comm 291 Web Communication

Three courses chosen from the following (9 cr)
- Comm 275 Introduction to Video Production
- Comm 281 Understanding Photography
- Comm 291 Web Communication
- Comm 320 Information Gathering and Reporting (3 cr)
- Comm 324 News Editing and Production (3 cr)
- Comm 401 or 498 Practicum in Communication or Internship
- Comm 425 Feature Article Writing
- Comm 442 Communication Law and Ethics (3 cr)

## LATIN

Basic language courses taken in high school or elsewhere may be evaluated for college equivalencies as part of this teaching major or minor. Consult the Department of Foreign Languages and Literatures for policies on earning credit for vertically-related courses.

### A. 45-CREDIT LATIN TEACHING MAJOR

Special methods sequence
- EDTE 437 Secondary Foreign Language Methods I (2)
- EDTE 447 Secondary Foreign Language Methods II (2)

FLEN 211-212 Classical Mythology (4 cr)
FLEN 243 English Word Origins (2 cr)
FLEN 364 Literature of Rome (3 cr)
FLEN 442 Civilization of Ancient Rome (3 cr)
Latn 101-102 Elementary Latin I-II (or equivalent) (8 cr)
Latin at the 300 and/or 400 level (to include at least 1 credit but not more than 3 credits of Latn 369) (15 cr)
A methods course approved by advisor and classics section or Latn 449 Practicum in Tutoring (2 cr)
Electives chosen from the following (3-4 cr):
- Additional upper-division Latin courses (especially recommended)
- Engl 441 Introduction to Study of Language
- FLEN 363 Literature of Ancient Greece
- FLEN 441 Ancient Greek Civilization

Approved upper division Latin electives to total 45 credits in the teaching major.

**B. 23-CREDIT LATIN TEACHING MINOR**

Latn 101-102 Elementary Latin I-II (or equivalent) (8 cr)
FLEN 243 English Word Origins (2 cr)
FLEN 364 Literature of Rome or 442 Civilization of Ancient Rome (3 cr)
Latin at the 300 and/or 400 level (to include 1 credit of Latn 369) (10 cr)

Note: A minor in Latin of less than 20 credits is not acceptable.

## LIBRARY SCIENCE

A teaching major in library science is not offered.

**24-CREDIT LIBRARY SCIENCE TEACHING MINOR**

The teaching minor in library science must total 24 credits. At least 12 of these must be in the areas of selection, organization, and administration of library materials. This teaching minor will qualify the student for the Idaho K-12 Education Media Generalist endorsement. Because library science is not a teaching field, the teacher-librarian must also qualify for a standard Idaho elementary or secondary teacher's certificate.

Note: Departmental approval and approval of site are required for the practicum; it is approved after the majority of the required course work has been completed.

LibS C420 Classification and Cataloging (4 cr)
LibS C421 Acquisitions and Collection Development in Libraries (3 cr)
LibS C422 Use of School Library and/or C423 Intro to Reference Work (2-5 cr)
LibS C425 Organization and Management of Small Libraries (4 cr)
LibS C427 Library and Media Center Practicum (1-3 cr)
Audiovisual aids and computer electives (minimum) (2 cr)
Note: The above selections must total at least 18 credits
Courses selected from the following (0-6 cr)
- EDTE 338 Children's Literature (3 cr)
- Engl 445 Literature for Adolescents (3 cr)
- Communication/graphic arts (6 cr)

## MATHEMATICS

Math 143 and 144 may be necessary prerequisites for students with weak backgrounds.

**A. 45-CREDIT MATHEMATICS TEACHING MAJOR**

Special methods sequence
- EDTE 434 Secondary Mathematics Methods I (2 cr)
- EDTE 454 Secondary Mathematics Methods II (2 cr)

EDTE 418 Identifying and Correcting Mathematics Deficiencies (3 cr)

Math 176 Discrete Mathematics (3 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Math 215 Seminar in Topology of the Plane (3 cr)
Math 286 Theory of Numbers (3 cr)
Math 330 Linear Algebra (3 cr)
Math 390 Geometry (3 cr)
Math 461 Abstract Algebra (3 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)

Stat 251 Prin of Stat or Stat 301 Probability and Stat or Math 451 Probability Theory (3 cr)
Two of the following courses (one must be above 400) (6 cr)
- Math 326 Linear Programming
- Math 346 Applied Combinatorics
- Math 376 Discrete Mathematics II
- Math 411 Elementary Topology
- Math 420 Complex Variables
- Math 462 Abstract Algebra
- Math 471 Advanced Calculus
- Math 472 Advanced Calculus
- Math 490 Introduction to Set Theory

Approved upper division mathematics electives to total 45 credits in the teaching major.

**B. 32-CREDIT MATHEMATICS TEACHING MAJOR**

Special methods sequence
- EDTE 434 Secondary Mathematics Methods I (2 cr)
- EDTE 454 Secondary Mathematics Methods II (2 cr)

EDTE 418 Identifying and Correcting Mathematics Deficiencies (3 cr)

Math 176 Discrete Mathematics (3 cr)
Math 170, 175 Analytic Geometry and Calculus (8 cr)
Math 215 Seminar in Topology of the Plane (3 cr)
Math 286 Theory of Numbers (3 cr)
Math 330 Linear Algebra (3 cr)
Math 390 Geometry (3 cr)
Math 461 Abstract Algebra (3 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
Stat 251 Prin of Stat or Stat 301 Probability and Stat or Math 451 Probability Theory (3 cr)

**C. 20-CREDIT MATHEMATICS TEACHING MINOR**

Note: Students who plan to apply for teacher certification with a mathematics teaching minor are recommended to take EDTE 418.

Special methods sequence (required for this teaching minor)
- EDTE 434 Secondary Mathematics Methods I (2 cr)
- EDTE 454 Secondary Mathematics Methods II (2 cr)

Math 176 Discrete Mathematics (3 cr)
Math 170, 175 Analytic Geometry and Calculus (8 cr)
Math 286 Theory of Numbers or 215 Seminar in Topology of the Plane (3 cr)
Math 390 Geometry (3 cr)
Stat 251 Prin of Stat or Stat 301 Probability and Stat or Math 451 Probability Theory (3 cr)

## MUSIC EDUCATION

**29-CREDIT VOCAL MUSIC TEACHING MINOR**

MusA 147-148 Voice Class (qualified students may substitute MusA 114 Individual Instruction: Voice) (2 cr)
MusA 145-146, 245-246 Piano Class (4 cr)
MusA 151 Guitar Class for Music Majors (1 cr)
MusA 387 Conducting I (2 cr)
MusC 139-140 Aural Skills I-II (4 cr)
MusC 141-142 Theory of Music I-II (4 cr)
MusH 101 Survey of Music (students may substitute MusH 111) (3 cr)
MusT 385 Choral Music in the Secondary School (2 cr)
MusT 389 Orff, Kodaly, and Dalcroze (2 cr)
MusT 485 Choral Ensemble Rehearsal Techniques (1 cr)
MusX 140 Convocation (two semesters) (0 cr)
Vocal ensembles (4 cr)

## PHYSICAL EDUCATION

**27- TO 29-CREDIT SECONDARY PHYSICAL EDUCATION TEACHING MINOR**

PEP 107 Movement Fundamentals (1 cr)
PEP 161 Introduction to Physical Education (1 cr)
PEP 201 Fitness Activities and Concepts (2 cr)
PEP 300 Human Kinesiology or 418 Physiology of Exercise (2-3 cr)
PEP 305 Applied Sports Psychology or 310 Cultural/Phil Aspects of Sport (2-3 cr)
PEP 360 Motor Development and Control (3 cr)
PEP 380 Measurement and Evaluation (2 cr)
PEP 421 Secondary Physical Education Methods (2 cr)
PEP 424 Physical Education for Special Populations (2 cr)
PEP 433 Secondary Curriculum and Administration (2 cr)
One of the following individual activity courses (1 cr):
PEP 132 Skill and Analysis of Tennis, Pickleball, and Badminton
PEP 133 Skill and Analysis of Golf and Archery
PEP 202 Skill and Analysis of Stunts and Tumbling
One of the following team activity courses (1 cr):
PEP 134 Skill and Analysis of Track and Field
PEP 135 Skill and Analysis of Basketball and Volleyball
PEP 136 Skill and Analysis of Soccer and Speedball
PEP 137 Skill and Analysis of Softball and Field Sports
One of the following recreational activity courses (1 cr):
PEP 138 Skill and Analysis of Outdoor Activities I
PEP 139 Skill and Analysis of Outdoor Activities II
Dan 112 Recreational Dance Forms (2 cr)
H&S 150 Wellness Lifestyles (3 cr)
H&S 288 First Aid: Emergency Response (2 cr)

## PHYSICAL SCIENCES

**45-CREDIT COMPOSITE TEACHING MAJOR**

This is a 40-credit composite teaching major consisting of courses in chemistry, geology, and physics. A teaching minor in mathematics is recommended to accompany this teaching major.

Special methods sequence
EDTE 433 Secondary Science Methods I (2 cr)
EDTE 443 Secondary Science Methods II (2 cr)

Biol 102 Biology and Society or Biol 111 Evolution and Diversity of Life or Geog 100 Physical Geog or Geog 401 Climatology (3-4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)
Chem 275 Carbon Compounds (3 cr)
Geol 101 Physical Geology (4 cr)
Phys 103 General Astronomy (3 cr)
Phys 211, 212, 213 Engineering Physics I, II, III (12 cr)
Phys 411 Physical Instrumentation I (3 cr)
Additional electives in chemistry, geology, or physics to total 45 credits. Recommended elective courses include Chem 302 & MMBB 380 (2-3 cr)

## PHYSICAL SCIENCE-LIFE SCIENCE

**63-CREDIT COMPOSITE TEACHING MAJOR**

Special methods sequence
EDTE 433 Secondary Science Methods I (2 cr)
EDTE 443 Secondary Science Methods II (2 cr)

Biol 111 Evolution and Diversity of Life (4 cr)
Biol 112 Biological Principles and Mechanisms (4 cr)
Biol 120 Human Anatomy (4 cr)
Biol 121 Human Physiology (4 cr)
Biol 203 General Botany (4 cr)
Chem 111 Principles of Chemistry I (4 cr)
Chem 112 Principles of Chemistry II (5 cr)

Phys 211, 212, 213 Engineering Physics I, II, III (12 cr)
Phys 411 Physical Instrumentation I (3 cr)
Courses in biology, chemistry, or physics (8 cr)
Electives chosen from the following (11 cr):
Biol 314 Ecology and Population Biology
Geog 100 Physical Geography
Geog 401 Climatology
Intr 394 Technology and Societal Decisions
Intr 490 Technology and Human Values
MMBB 250 General Microbiology
Phys 103 General Astronomy

## PHYSICS

### A. 45-CREDIT PHYSICS TEACHING MAJOR

Special methods sequence
EDTE 433 Secondary Science Methods I (2 cr)
EDTE 443 Secondary Science Methods II (2 cr)

Phys 103 General Astronomy (3 cr)
Phys 211, 212, 213 Engineering Physics I, II, III (12 cr)
Phys 305 Modern Physics (3 cr)
Phys 411 Physical Instrumentation I (3 cr)
Biol 111 Evolution and Diversity of Life (4 cr)
Chem 101 Intro to Chemistry I or 111 Prin of Chemistry I (4 cr)
Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)
Approved upper division physics electives to total 45 credits in the teaching major.

### B. 20-CREDIT PHYSICS TEACHING MINOR

Phys 211, 212, 213 Engineering Physics I, II, III (12 cr)
Phys 305 Modern Physics (3 cr)
Electives in physics (approved by advisor in Dept of Physics), including at least 2 credits of lab work (5 cr)

## POLITICAL SCIENCE

### A. 30-CREDIT POLITICAL SCIENCE TEACHING MAJOR

A minimum of 30 credits in political science courses is required with an additional 6 credits in US history necessary for certification. Courses listed in more than one field may be counted in only one of those fields. Substitutions in specific courses may be made with the consent of the advisor.

Special methods sequence
EDTE 432 Secondary Social Science Methods I (2 cr)
EDTE 442 Secondary Social Science Methods II (2 cr)
US history electives 6 cr

**U.S. Government: Process and Policy (12-15 cr)**
PolS 101, Introduction to Political Science and American Government
And 9-12 cr from the following: PolS 275, 431, 432, 433, 437, 439, 460, 464, 465, 469

15-18 credits in the following fields including at least 3 credits in each field:

**Comparative Government and Politics**
At least 3 credits from the following: PolS 380, 381, 382, 383, 480, 482, 484, 485, 487

**International Relations**
At least 3 credits from the following: PolS 237, 438, 440, 449

**Public Administration and Public Law**
At least 3 credits from the following: PolS 451, 452, 454, 460, 467, 468, 469

**Political Thought**
At least 3 credits from the following: PolS 425, 426, 428, 429

**B. POLITICAL SCIENCE TEACHING MINOR**

A minimum of 20 credits in political science courses is required with an additional 6 credits in US history necessary for certification.

PolS 101 Introduction to Political Science and American Government (3 cr)
Three additional credits in U.S. govt (see the list of courses in U.S. Govt: Process and Policy under teaching major above) (3 cr)
Three credits in comparative govt (see the list of courses in Comparative Govt and Politics under teaching major above) (3 cr)
Other political science electives selected from courses listed in the teaching major (11 cr)

US history electives (6 cr)

## PSYCHOLOGY

**A. 30-CREDIT PSYCHOLOGY TEACHING MAJOR**

The basic objective of this teaching major is to provide the undergraduate student with preparation that leads to teaching psychology in secondary schools, and/or to undertake graduate work in several related areas. Though psychology is an endorsement area, it is desirable to present two teaching minors in standard secondary-school subjects. At least a teaching minor in sociology/anthropology is recommended for those anticipating graduate work in guidance and counseling and school psychology. A second teaching major in lieu of two teaching minors is acceptable preparation. The composite teaching majors (e.g., social science or physical science), if elected as a second teaching major, should meet the stipulated credit requirement.

Special methods sequence
EDTE 432 Secondary Social Science Methods I (2 cr)
EDTE 442 Secondary Social Science Methods II (2 cr)

Psyc 101 Introduction to Psychology (3 cr)
Psyc 218 Introduction to Research in Behavioral Sciences (4 cr)
Psyc 305 Developmental Psychology (3 cr)
Psyc 310 Psych of Personality or 456 Psych of Emotion (3 cr)
Psyc 311 Abnormal Psychology (3 cr)
Psyc 320 Introduction to Social Psychology (3 cr)
Psyc 372 Physiological Psychology or 444 Sensation and Perception (3 cr)
Psyc 390 Psychology of Learning or 325 Cognitive Psychology (3 cr)
Stat 251 Principles of Statistics (3 cr)
Approved upper-division psychology elective (2 cr)

**B. 20-CREDIT PSYCHOLOGY TEACHING MINOR**

Psyc 101 Introduction to Psychology (3 cr)
Psyc 218 Introduction to Research in Behavioral Sciences (4 cr)
Psyc 305 Developmental Psychology (3 cr)
Psyc 390 Psychology of Learning (3 cr)
Stat 251 Principles of Statistics (3 cr)
Approved psychology electives (4 cr)

## SOCIAL SCIENCE

**A. 45-CREDIT COMPOSITE TEACHING MAJOR**

Note: Due to extensive course overlap, social science majors may NOT select history as a teaching second major or as a minor.

This 45-credit composite teaching major requires a minimum of 15 approved credits in history and at least 6 approved credits each in economics, geography, political science, and sociology or anthropology (all 6 credits in *either* sociology or anthropology). The remaining 6 credits are to be distributed among any two of these areas (excluding history and treating sociology and anthropology as one area). Required and other approved courses include:

Special methods sequence
EDTE 432 Secondary Social Science Methods I (2 cr)
EDTE 442 Secondary Social Science Methods II (2 cr)

**History** (15 cr)
Hist 101, 102, 111, 112
Modern U.S. or European history (1 course minimum)

**Economics** (6 cr)
Econ 201 and 202
Recommended electives: Econ 345 or 390

**Geography** (6 cr)
Geog 165, 200, or 330 (choose two or more)

**Political Science** (6 cr)
PolS 101
Choose one or more from PolS 275, 381, 382

**Sociology or Anthropology** – choose one of the following: (6 cr)
Soc 101 and any other sociology course (excluding courses on social welfare and services) (6 cr) *or*
Anth 100 and any other anthropology course (6 cr)

**Electives**. One additional course taken from any two of the above areas, excluding history and treating sociology and anthropology as one area (6 cr)

**B. 45- OR 60-CREDIT TEACHING MAJOR THROUGH AMERICAN STUDIES**

Special methods sequence
EDTE 432 Secondary Social Science Methods I (2 cr)
EDTE 442 Secondary Social Science Methods II (2 cr)

American studies majors follow the credit distributions and recommended courses as stated above for economics, geography, history, political science, and sociology or anthropology.

## SOCIOLOGY/ANTHROPOLOGY

A teaching major in sociology/anthropology is not offered.

**20-CREDIT SOCIOLOGY/ANTHROPOLOGY TEACHING MINOR**

Anth 100 Introduction to Anthropology (3 cr)
Anth 220 Peoples of the World or 329 North American Indians (3 cr)
Soc 101 Introduction to Sociology (3 cr)
Soc 230 Social Problems (3 cr)
Approved electives in anthropology and sociology (8 cr)

## SPANISH

Basic language courses taken in high school or elsewhere may be evaluated for college equivalencies as part of this teaching major and minor. Consult the Department of Foreign Languages and Literatures for policies on credit for vertically-related courses.

**A. 45-CREDIT SPANISH TEACHING MAJOR**

Special methods sequence
EDTE 437 Secondary Foreign Language Methods I (2)
EDTE 447 Secondary Foreign Language Methods II (2)

Span 101-102 Elementary Spanish I-II (8 cr)
Span 201-202 Intermediate Spanish I-II (8 cr)
Span 301 Advanced Grammar (3 cr)
Span 302 Advanced Composition (3 cr)
Span 305 Culture and Institutions of Spain (3 cr)
Span 306 Culture and Institutions of Latin America (3 cr)
Upper-division courses in Spanish language (9 credits must be at 400 level) to total 45 credits in the teaching major.

A maximum of 3 credits in FLEN 391, 393, or 394 may be counted toward a teaching major in Spanish.

**B. 22-CREDIT SPANISH TEACHING MINOR**

Span 101-102 Elementary Spanish I-II (8 cr)
Span 201-202 Intermediate Spanish I-II (8 cr)
Approved upper-div Spanish electives (either Span 301 or 302 reqd; lab-based and lit in translation courses are not acceptable) (6 cr)

Note: A minor in Spanish of less than 22 credits is not acceptable.

## SPEECH

**A. 30-CREDIT SPEECH TEACHING MAJOR**

Special methods sequence (1-2 credits will be taken concurrently with EDTE 485)
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

Comm 111 Introduction to Communication Studies (3 cr)
Comm 112 Media and Society (3 cr)
Comm 233 Interpersonal Communication (3 cr)
Comm 310 Communication Inquiry (3 cr)
Comm 331 Conflict Management (3 cr)
Comm 332 Communication and the Small Group (3 cr)
Comm 335 Intercultural Communication (3 cr)
Comm 347 Persuasion or Phil 201 Critical Thinking (3 cr)
Comm 431 Professional Presentation Techniques (3 cr)
TheA 105 Basics of Performance (3 cr)

**B. 21-CREDIT SPEECH TEACHING MINOR**

Special methods sequence (1-2 credits will be taken concurrently with EDTE 485) (required for this teaching minor)
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

Comm 111 Introduction to Communication Studies (3 cr)
Comm 112 Media and Society (3 cr)
Comm 233 Interpersonal Communication (3 cr)
Comm 332 Communication and the Small Group (3 cr)
TheA 105 Basics of Performance (3 cr)
Two of the following courses (6 cr)
Comm 310 Communication Inquiry
Comm 331 Conflict Management
Comm 335 Intercultural Communication
Comm 347 Persuasion or Phil 201 Critical Thinking

## THEATRE ARTS

**A. 45-46 CREDIT THEATRE ARTS TEACHING MAJOR**

Special methods sequence
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

TheA 103-104 Theatre Technology I-II (8 cr)
TheA 105-106 Basics of Performance (6 cr)
TheA 190 Theatre Practice (2-3 cr)
TheA 201 Scene Design I (3 cr)
TheA 202 Costume Design I (3 cr)
TheA 207 Theatrical Make-up (3 cr)
TheA 305 Intermediate Acting (3 cr)
TheA 320 Theatre Management (2 cr)
TheA 371 Play Analysis (3 cr)
TheA 390 Theatre Practice (2-3 cr)
TheA 468-469 Theatre History I & II (6 cr)
TheA 471 Directing (3 cr)

**B. 25-CREDIT THEATRE ARTS TEACHING MINOR**

TheA 103-104 Theatre Technology I-II (8 cr)
TheA 105-106 Basics of Performance (6 cr)
TheA 201 Scene Design I (3 cr)
TheA 202 Costume Design I (3 cr)
TheA 320 Theatre Management (2 cr)
TheA 471 Directing (3 cr)

## THEATRE ARTS-SPEECH

**46-CREDIT COMPOSITE TEACHING MAJOR**

Special methods sequence
EDTE 440 Secondary English Methods I (2 cr)
EDTE 441 Secondary English Methods II (2 cr)

Comm 111 Introduction to Communication Studies (3 cr)
Comm 112 Media and Society (3 cr)
Comm 233 Interpersonal Communication (3 cr)
Comm 331 Conflict Management (3 cr)
Comm 332 Communication and the Small Group (3 cr)
Comm 347 Persuasion or Phil 201 Critical Thinking (3 cr)
Comm 431 Professional Presentation Techniques (3 cr)
TheA 103-104 Theatre Technology I-II (8 cr)
TheA 105-106 Basics of Performance (6 cr)
TheA 201 Scene Design I (3 cr)
TheA 202 Costume Design I (3 cr)
TheA 320 Theatre Management (2 cr)
TheA 471 Directing (3 cr)

# Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Teaching, Learning, and Leadership. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. Applicants for the M.S. or M.Ed. degree are expected to meet the requirements for the teaching certificate and one year of teaching experience.

**Master of Science.** General M.S. requirements apply.

**Master of Education.** General M.Ed. requirements apply.

**Education Specialist in Elementary, Secondary, or Special Education.** These post-master's programs are designed to give additional graduate preparation to those who wish to continue in teaching or enter into supervisory and leadership positions in the public schools. The specialist degree is available in the Division of Teaching, Learning, and Leadership, with emphases in elementary education, secondary education, and special education. It is expected that these students will have had a minimum of two years of experience in public schools of which one was classroom teaching. A knowledge of basic statistics is highly recommended for beginning graduate work and essential to professional literacy. Professional degree programs require 60 hours of graduate work beyond the baccalaureate degree.

**Education Specialist in Educational Leadership.** This sixth-year program is designed to prepare students for administrative positions up to and including the superintendency. Candidates with master's degrees in fields other than administration may acquire an education specialist degree while completing requirements for certification as a principal.

**Doctor of Education.** The Ed.D. and Ph.D. programs are designed for those persons who show promise in theory development and research, and who seek to provide instructional and/or administrative leadership. The programs aim to develop a comprehensive understanding of the field of education and the ability to identify and resolve pertinent problems in education. Divisional requirements for the Ed.D. degree are: 15 credits in research competency, including statistics and research; 18 credits in dissertation; 18 credits in a cognate area of which 9 should be taken outside of the College of Education; 30 credits in a major area of competency. The credits indicated in each area are minimums.

**Doctor of Philosophy.** See general statement about the doctoral programs with the Ed.D. degree above. Divisional requirements for the Ph.D. degree are: 18 credits in research competency, including statistics and research design; 18 credits in a cognate area of which 9 should be taken outside of the College of Education; 18 credits in dissertation; 30 credits in a major area of competency.

**Teacher Certification and Professional Development.** A person who holds a bachelor's degree and wishes to earn an elementary or secondary teaching certificate should talk to the director of the Division of Teaching, Learning, and Leadership about entry into the certification and/or degree programs. Certification may be obtained at the graduate level in conjunction with the curriculum and instruction degree (M.Ed.) and the special education degree.

# Department of Theatre Arts

**David Lee-Painter, Dept. Chair (118 Shoup Hall 83844-3072; phone 208/885-6465).** ***Faculty:*** **Robert C. Caisley, Nike M. Imoru, David Lee-Painter, Stephanie S. Miller, Dale Moffitt, Kim Monk, Dean F. Panttaja, Kelly M. Quinnett, Cheri D. Vasek, Richard Wolf-Spencer.**

The study of theatre encourages the development of the whole person. Through performance, students gain a deeper understanding of themselves and human behavior. Through design, students learn how to manipulate space, lighting, color, and texture. Through the study of drama, students learn how to use the elements of theatre as performance as well as process. Through collaborative participation in the creative process, students develop the leadership and teamwork skills needed to be effective and successful participants in contemporary society.

The program of study offers a solid foundation for competitive placement in distinguished graduate programs as well as preparing students for a variety of career options including professional theatre, film, television, education, playwrighting, dramaturgy, arts management, art therapy, youth-at-risk counseling, and recreational drama for special populations. Because theatre is by nature interdisciplinary, it is an excellent way to enhance a general education, encouraging artistic sensitivity and collaborative skills.

The B.A. and B.S. degrees are available for students interested in the study of theatre within a liberal arts framework, or as part of a teacher education program. The B.F.A. is a rigorous, competitive program of study for students interested in pursuing careers in professional theatre. An audition or portfolio review as well as faculty approval are required for acceptance in the program, and the progress of B.F.A. candidates is monitored closely each semester, utilizing performance juries and portfolio reviews. A core of theatre course work is required of all theatre majors. Specialization is available in performance or design at the undergraduate level, and students enjoy flexibility in shaping their studies according to particular goals or interests.

Mainstage productions, which include collaborative partnerships with the university's music and dance programs, help students foster a close working relationship with faculty, and enable the kind of growth that comes through working with professional artists. Class projects and studio work are fully integrated with the department's mainstage season to create a balance between theory and skill development.

The department also offers Idaho's only M.F.A. in theatre, and students may select an area of emphasis in acting, directing, or design and/or technology (with specialization in scenery, costumes, or lighting). Numerous opportunities exist to design, perform, and direct productions, which are considered an integral part of graduate training. If qualified, graduate students may assist in teaching basic course work to undergraduates. Admission requires a minimum 3.0 GPA, a statement of goals or intent, three letters of recommendation, and a portfolio of design work or a 4-6 minute audition tape.

The department has two mainstage theatre venues as well as a drama laboratory. The elegant 417-seat Hartung Theatre features a semi-thrust proscenium stage, new digital lighting, and fully equipped shops for scenery and costume construction. The Kiva Theatre is an intimate 125-seat performance studio, equipped for flexible staging, including theatre-in-the-round. The Arena, which is managed by the Student Theatre Organization, is a 50-seat drama laboratory designed to showcase the talents and artistic vision of student directors and actors.

The Hartung Theatre is home to the university's professional summer theatre company, Idaho Repertory Theatre, established in 1953. Numerous theatre students participate in the summer productions on a variety of levels, working with professional designers, directors, and actors from across the country. Students are also encouraged to seek out internships with other professional theatre companies to enhance their studies.

For more information on the departments, its programs of study and theatre productions, visit our web sites: www.its.uidaho.edu/thea (Theatre Arts Department); www.uitheatre.uidaho.edu (academic theatre season), and www.irt.uidaho.edu (Idaho Repertory Theatre), or call (208) 885-5182.

## Courses

See part 6 for courses in Theatre Arts (TheA).

## Undergraduate Curricular Requirements

### THEATRE ARTS (B.A. or B.S.)

To be eligible for graduation, theatre arts students taking B.A./B.S. options in theatre must achieve a minimum grade of C in all theatre courses required by their major. To participate in departmental productions, a student must maintain a minimum 2.00 overall GPA.

Required course work for students pursuing the **B.A.** in theatre arts includes (1) the university requirements (see regulation J-3), (2) the general L&S core requirements, and (3) the theatre arts core courses listed below.

Required course work for students pursuing the **B.S.** in theatre arts includes (1) the university requirements (see regulation J-3), (2) the general L&S core, an established minor, or courses in a related field approved by the Theatre Arts Department (20 cr), and (3) the theatre arts core courses listed below.

TheA 100 U.S. Contemporary Theatre (3 cr)
TheA 103, 104 Theatre Technology I, II (8 cr)
TheA 105-106 Basics of Performance (6 cr)
TheA 201 Scene Design I (3 cr)
TheA 202 Costume Design I (3 cr)
TheA 205 Lighting Design I (3 cr)
TheA 207 Theatrical Make-up (3 cr)
TheA 305 Intermediate Acting (3 cr)
TheA 320 Theatre Management (2 cr)
TheA 371 Play Analysis (3 cr)
TheA 390 Theatre Workshop (at least 1 cr in 4 different semesters) (4 cr)
TheA 468 Theatre History I (3 cr)
TheA 469 Theatre History II (3 cr)
TheA 471 Directing (3 cr)
Electives in design/production (3 cr)

### THEATRE ARTS (B.F.A.)

The Bachelor of Fine Arts degree is a rigorous training program for students wishing to pursue a career in the professional theatre. Admittance to the B.F.A. program in theatre requires an audition or portfolio review and faculty approval. B.F.A. candidates are closely monitored throughout enrollment utilizing performance juries and portfolio reviews each semester. Specific areas of study within the degree include (but are not limited to) acting, technical production, scenery, lighting, or costume design. Individual courses are selected in consultation with an advisor, so the degree is tailored as closely as possible to a student's specific needs and interests. Students are encouraged to seek out internships with professional theatre companies as part of their program of study.

To be eligible for admittance, continued candidacy, and graduation, the B.F.A. candidate in theatre arts must achieve a minimum grade of C in each theatre course required for the major. To participate in departmental productions, a student pursuing the B.F.A. must maintain a minimum 3.00 overall GPA each semester.

Required course work includes (1) the university requirements (see regulation J-3), (2) the departmental requirements for the B.S. or B.A., and (3) a 30-credit area of departmentally approved emphasis.

## Academic Minor Requirements

### TECHNICAL THEATRE MINOR

TheA 103, 104 Theatre Technology I, II (8 cr)
TheA 201 Scene Design I (3 cr)
TheA 202 Costume Design I (3 cr)
TheA 205 Lighting Design I (3 cr)
TheA 207 Theatrical Make-up (3 cr)
Upper-division technical theatre course work (3 cr)

### THEATRE ARTS MINOR

TheA 103, 104 Theatre Technology I, II (8 cr)
TheA 105, 106 Basics of Performance (6 cr)
TheA 207 Theatrical Make-up (3 cr)
TheA 305 Intermediate Acting (3 cr)
TheA 471 Directing (3 cr)

## Graduate Degree Program

The Master of Fine Arts degree at the University of Idaho is a rigorous three-year, 60-72 hour degree designed for talented students wishing to prepare themselves for a career in the professional theatre. Degree tracks in areas of design, directing, performance and technical production are built around specific curriculum categories and individual courses are selected by the candidate in consultation with his or her major professor. Student progress is monitored by portfolio review or performance jury each semester. Exit procedures from the program include a creative project and comprehensive exam.

Candidates must fulfill the general requirements of the Graduate College and a minimum of 60 credits from the course groupings listed below:

STUDIO AREA--12-16 credits. A minimum of 12 credits are taken in course work directly related to an area of specialization. The studio area of study is individualized to the candidate's specific needs and areas of weakness. Candidates will enroll in M.F.A. Studio each semester of residence excluding summers.

RELATED STUDIO AREA--9-12 credits. A minimum of 9 credits are taken in a related studio area which generally pertains directly to the candidate's area of specialization.

CRAFT AREA--8-12 credits. A minimum of 8 credits are taken in courses to develop specific skills associated with the studio area.

HISTORY/LITERATURE/CRITICISM--9-12 credits. A minimum of 9 credits are taken in history or literature courses which relate directly to the studio area. Courses taken to fulfill this requirement might include dramatic literature, social history, art history, architectural history, and theatre history.

INTERNSHIP--12 credits. A maximum of 12 credits of TheA 598, Internship, are taken to augment course work with professional experiences with professional regional theatres in the area.

MFA JURY/PORTFOLIO REVIEW--6 credits. A minimum of 6 credits of TheA 515, MFA Jury/Portfolio Review, must be completed with a grade of B or better before the awarding of the degree. A maximum of 1 credit of TheA 515 may be taken each semester.

M.F.A. EXIT PROCEDURES--3 credits. Exit procedures vary with the area of specialization. In each case the exit procedure revolves around a thesis project or exam completed sometime in the last two semesters of residence. Projects are designed in consultation with the candidate's graduate committee. Candidates must enroll in TheA 596, M.F.A. Exit Project, during the semester the project is undertaken.

# Program in Women's Studies

**Sandra L. Haarsager, Coordinator (113 Admin. Bldg. 83844-3154; phone 208/885-6426).** ***Faculty:*** **Katherine G. Aiken, Janice Capel Anderson, Ginna M. Babcock, Anna Banks, Mary Clearman Blew, Laurel J. Branen, Mary H. DuPree, Martha J. Einerson, Janice W. Fletcher, Stephan P. Flores, Kathryn Paxton George, Nicholas F. Gier, Candida Gillis, H. Lynne Haagensen, Sandra Haarsager, Walter A. Hesford, Eric L. Jensen, Georgia Johnson, Virginia W. Junk, Ellen E. Kittell, Cecelia E. Luschnig, Sheila O'Brien, Patricia Riley, Dene K. Thomas, Nancy J. Wanamaker, Joan M. West, J. Gary Williams, Laurie J. Wilson.**

Women's Studies connects different kinds of knowledge across many subjects. The minor offers an interdisciplinary program that uses gender to examine such cultural variables as class, ethnicity, nationality, sexual identity, and age. The courses encourage students to develop critical thinking skills that will empower them as active learners and that will lead them to a better understanding of differences in the society that surrounds them. Fields such as gerontology, mass communication, recreation, criminology, economics, health services, social work, law, psychology, and education are increasingly offering special career opportunities to students with a background in Women's Studies.

## Courses

See part 6 for courses in Women's Studies (WmSt).

## Academic Minor Requirements

### WOMEN'S STUDIES MINOR

WmSt 201 Women, Culture, and Society: Intro to Women's Studies (3 cr)
Courses chosen from the following (12 cr)
- Engl/FLEN 481 Women's Literature (3 cr)
- FCS 445 Issues in Work and Family Life (3 cr)
- Hist 357 Women in Pre-Modern European History or Hist 420 History of Women in American Society (3 cr)
- Phil 425 Feminism and Philosophy (3 cr)
- Psyc 330 Human Sexuality (3 cr)
- Soc/Anth 322 Racial and Ethnic Relations or Soc 324 Soc of Gender (3 cr)

Courses in two different disciplines from the list above or the following (6 cr)
- Comm 432 Gender and Communication (3 cr)
- FCS 240 Intimate Relationships (3 cr)
- FCS 346 Personal and Family Finance and Management (4 cr)
- FCS 405 Eating Disorders (2 cr)
- FCS 419 Dress and Culture (3 cr)
- FCS 440 Contemporary Family Relationships (3 cr)
- H&S 311 Acquaintance Rape (3 cr)
- Phil 252 Biomedical Ethics (3 cr)
- Psyc 320 Introduction to Social Psychology (3 cr)
- Soc 325 Sociology of the Family (3 cr)

WmSt 499 Directed Study (a synthetic paper) (1 cr)

With prior approval of the Women's Studies committee, a student may also include credit from survey courses, special topics courses, or seminars meeting the guidelines for inclusion of courses in a Women's Studies minor. No more than 3 credits may count toward both the student's major and minor.

# Course Numbering System and Key to Abbreviations and Symbols

## Numbering System

Courses numbered 001 are continuing education unit (CEU) courses; those numbered 010-099 are remedial-level courses carrying no credit; those numbered 100-299 are lower-division courses primarily for undergraduates; 300-499 are upper-division courses primarily for advanced undergraduates, fifth-year students, and graduates; courses numbered 500-600 are intended for and are restricted to students enrolled in the College of Graduate Studies (see regulation B-8 in part 3 for the exception to this rule); courses numbered 800-999 are intended for and are restricted to students enrolled in the College of Law.

## Letter Designations with Numbers

Certain course numbers also include letters preceding the number (i.e. R101, C100):

**C; (C)** - when included as part of the course number, offered by correspondence study only; when shown in parentheses following the number of credits, also offered by correspondence study.

**H** - offered only in University Honors Program.

**LC** - cooperative course with Lewis-Clark State College offered at the University of Idaho and available to LCSC students.

**ID** - cooperative course with Washington State University or Lewis-Clark State College offered at the University of Idaho and available to WSU or LCSC students.

**J** - courses conducted jointly, e.g., MusA J365/J565 (Chamber Ensemble), in which students' assignments and expected levels of performance reflect the levels for which they are enrolled.

**R** - offered only at the University of Idaho at Idaho Falls.

**WS** - cooperative course with Washington State University offered at WSU and available to University of Idaho students. For complete description, consult the WSU catalog.

## Subtitled Courses

An "s" in parentheses between the number and title of a course indicates that the course may be offered under the main title and/or with an appended subtitle, e.g., "Seminar" and/or "Seminar in the History of the Pacific Northwest." The specific area normally will be listed in the Time Schedule as a separate section of the main course.

## Standard Course Numbers

University-wide numbers have been established for certain categories of courses. These courses need not be listed in a subject-field section in the catalog unless they are to be offered regularly; they may be offered and listed in the *Time Schedule* whenever they are needed. The following course numbers and titles are authorized: **200, 400, 501** Seminar; **203, 403, 503** Workshop; **204, 404, 504** Special Topics; **405, 505** Professional Development; **298, 398, 498, 598** Internship; **299, 499, 502** Directed Study; **500** Master's Research and Thesis; **597** Graduate Practicum; **599** Research; **600** Doctoral Research and Dissertation.

## Credit Designations

Immediately following each course title, the number of credits authorized is shown in parentheses. Typical designations are:

**(3 cr)** - three semester credits (for courses with more than one number, e.g., 101-102-103, the three credits apply to each number).

**(1-3 cr)** - one to three semester credits.

**(3 cr; 2 cr)** - three credits fall semester; two credits spring semester.

**(1-3 cr, max 3)** - one to three credits during any academic session and the course may be repeated until the maximum of three credits has been earned.

**(3 cr, max 12)** - three credits during any academic session and the course may be repeated until the maximum of twelve credits has been earned (for a course with more than one number, e.g., 301-302, the maximum is overall and applies to the combined numbers).

**(cr arr)** - credits to be arranged (may be repeated for credit without restriction as to maximum).

**(1-3 cr, max arr)** - one to three credits during any academic session, and the course may be repeated.

## Parenthetical Course Numbers

Course numbers that appear in parentheses after the course credits are former numbers and appear for one edition only.

## Other Abbreviations

**alt/yrs** - offered in alternate years
**alt/sem** - offered in alternate semesters
**coreq** - corequisite
**cr** - credit
**dem** - demonstration
**dept** - department
**disc** - discussion
**div** - division
**exam** - examination
**GPA** - grade-point average
**grad** - graduate
**hr** - hour
**intro** - introduction(-tory)
**Jr** - junior
**lab(s)** - laboratory(-ies)
**lec** - lecture(-s)
**perm** - permission of instructor
**perm of dept** - permission of department or subject-field chair
**P/F** - graded on the basis of pass or fail
**prereq** - prerequisite
**reqd** - required
**Soph** - sophomore
**Sr** - senior
**undergrad** - undergraduate

# Accounting

**Marcia S. Niles, Chair, Dept. of Accounting (125A J. A. Albertson Bldg. 83844-3161; phone 208/885-6453).**

Enrollment in 300- and 400-level accounting courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.35 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisite to a course for which they are otherwise eligible may register for the course with the instructor's approval.

Acct **200** (s) **Seminar** (cr arr). Prereq: perm.

Acct **201** **Introduction to Financial Accounting** (3 cr) (C). Overview of the nature and purpose of general purpose financial statements provided to external decision makers; emphasis on use of financial statement information. May involve evening exams. Caries only 1 credit after Acct 205.

Acct **202** **Introduction to Managerial Accounting** (3) (C). Intro to cost behavior and managerial use of accounting information for planning, control, and performance evaluation. May involve evening exams. Carries only 1 credit after Acct 205.

Acct **203** (s) **Workshop** (cr arr). Prereq: perm.

Acct **204** (s) **Special Topics** (cr arr). Prereq: perm.

Acct **205** **Fundamentals of Accounting** (4 cr). Principles of financial and managerial accounting with emphasis on the role of accounting information in decision making by managers and external users. Projects and assignments are done using spreadsheet software. Three lectures and one hour of lab a week. May include evening exams. Carries no credit after Acct 201 and 202; carries 3 credits after either Acct 201 or 202.

Acct **299** (s) **Directed Study** (cr arr). Individual sections may be graded P/F. Prereq: perm.

Acct **300** **Accounting Concepts and Systems** (3 cr). Foundations of accounting concepts and theories with emphasis on the role of information in decision making within and about organizations; conceptual framework of accounting; intro to accounting systems; includes computer applications reinforced by practice cases; wordprocessing and spreadsheet proficiency reqd. May include evening exams. Prereq: Acct 201, 202, and Stat 271.

Acct **275** **Accounting Information Systems** (3 cr) (Acct 305). Role of accounting information systems in effective control of organizations; coverage of internal controls, flowcharting, systems analysis and design, implementation and evaluation as they relate to the major systems cycles; revenue, purchases, production, payroll, cash receipts and disbursements. May include evening exams. Prereq: Acct 201 or 202 or 205.

Acct **310** **Accounting for Business Decisions I** (2 cr). Accounting concepts and theories with emphasis on the role of accounting information in decision making within and about business; effect of accounting information on behavior; recognition and valuation issues and analysis of financial statements; and use of cost management accounting systems to support product and process planning. May include evening exams. Coreq: Bus 340.

Acct **311** **Accounting for Business Decisions II** (2 cr). Use of accounting systems to support planning and decision-making in organizations; managing the firm’s financial, human, and information resources; and business operating decisions. May include evening exams. Prereq: Acct 310. Coreq: Bus 343.

Acct **315** **Corporate Accounting and Reporting** (3 cr) (Acct 301). Preparation of general purpose financial statements for external users based on U.S. generally accepted accounting principles. Emphasis on transactions relating to financing and investing activities. Conceptual framework based instruction includes comparison with alternative treatments used in other countries and under U.S. tax code. May include evening exams. Prereq: Acct 300, or Acct 310 and 311.

Acct **381** **Accounting for Managers and Investors** (3 cr). Not open for cr to College of Business & Economics majors. Development of knowledge and skills relating to the use of accounting information to enhance decision making. May involve some evening exams. Carries no credit after Acct 311. Prereq: Acct 201 and 202, or Acct 205.

Acct **385** **Cost and Management Accounting** (3 cr). Design and use of cost management systems to support decision making and influence behavior; includes tracing costs to processes, activities, products, and customers; budgeting and responsibility accounting. May include evening exams. Prereq: Acct 275 or Bus 345.

Acct **400** (s) **Seminar** (cr arr). Prereq: perm.

Acct **403** (s) **Workshop** (cr arr). Prereq: perm.

Acct **404** (s) **Special Topics** (cr arr). Prereq: perm.

Acct **J405/J505** (s) **Professional Development** (cr arr). Credit earned in these courses will not be accepted toward graduate degree programs. Prereq: perm.

Acct **J430/J530 Accounting for Public Sector Entities** (3 cr). Conceptual and procedural issues involving accounting, reporting, and auditing public sector organizations; topics include state and local governmental accounting principles, GASB/FASB jurisdiction over not-for-profit organizations, federal financial and performance auditing standards, and relevant current issues. Additional class meetings, projects, and/or assignments required for graduate credit. May include evening exams. Prereq: Acct 201 and 202, or Acct 205.

Acct **483 Federal and State Taxes I** (3 cr). Income determination, deductions, accounting methods, sales of property, deferral of tax, taxation of the individual, tax research, with primary emphasis on tax planning; the case method is used. May include evening exams. Prereq: Acct 201 and 202, or Acct 205.

Acct **J484/J584 Federal and State Taxes II** (3 cr). Taxation of corporations and partnerships with emphasis on tax planning, tax research; the case method is used. Additional class meetings, projects, and/or assignments required for graduate credit. May include evening exams. Prereq: Acct 483.

Acct **J485/J585 Gift and Estate Taxation** (3 cr). Gift and estate tax consequences on property transfer during life and at death, tax research, and estate planning and personal financial planning. Additional class meetings, projects, and/or assignments reqd for grad cr. May include evening exams. Prereq: Acct 483 (Acct J484/J584 recommended).

Acct **J486/J586 Contemporary Management Accounting Issues** (3 cr). Synthesis of managerial accounting skills through case analysis, written and oral reports; topics include decision making, divisional performance evaluation, transfer pricing, activity based costing, theory of constraints, and total quality management. Additional class meetings, projects, and/or assignments required for graduate credit. May include evening exams. Prereq: Acct 385.

Acct **490 Advanced Corporate Accounting and Reporting** (3 cr). In-depth coverage of selected topics in financial accounting designed to provide students with research skills needed to successfully interpret and apply accounting standards as promulgated by official bodies; topics include complex areas in liability accounting such as leases and pensions, pooling and purchase methods of consolidations, and earnings per share. May include evening exams. Prereq: Acct 315.

Acct **492 Auditing and Controls** (3 cr). Value of the audit, concepts of attestation and relevant reporting, theories of evidence, development of risk analysis approach to auditing, with emphasis on internal and performance auditing; documentation and understanding of internal control structure, environment, system design, procedures and testing. May include evening exams. Prereq: Acct 275, 315, and 385.

Acct **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Acct **498 Accounting Internship Program** (1-3 cr, max 3). Formalized learning experience in an actual work setting. Students work within an accounting related field (accounting, auditing, and taxation) and commit to a minimum of 50 hours of direct supervised work for each semester credit. May include evening exams. This course does not count as an undergraduate accounting elective. Graded P/F. Prereq: Sr status.

Acct **499** (s) **Directed Study** (cr arr). Individual sections may be graded P/F. Prereq: perm.

Acct **500 Master's Research and Thesis** (1-6 cr, max 6). Prereq: perm.

Acct **501** (s) **Seminar** (cr arr). Prereq: perm.

Acct **502** (s) **Directed Study** (cr arr). Individual sections may be graded P/F. Prereq: perm.

Acct **504** (s) **Special Topics** (cr arr). Prereq: perm.

Acct **505** (s) **Professional Development** (cr arr). See Acct J405/J505.

Acct **530 Accounting for Public Sector Entities** (3 cr). See Acct J430/J530.

Acct **561 Comparative Accounting Theory** (3 cr). Seminar on comparative accounting theory and practice including the role of accounting information in financial markets and the impact of those markets on accounting disclosures; introduction to empirical accounting research, the role of standard setting entities, international harmonization of accounting and auditing standards, globalization of business operations, and fluctuations in currency exchange rates. Prereq: Acct 315.

Acct **570 Advanced Accounting Systems Analysis and Controls** (3 cr). Emphasis on the role of computer and information technology in the development, analysis, and operation of accounting information systems; includes advanced coverage of accounting transaction cycles, accounting systems planning and analysis, accounting system design, accounting systems implementation and operation, and the accounting system internal control structure. May include evening exams. Prereq: Acct 275. Coreq: Acct 492.

Acct **582 Cost Management Systems** (3 cr). Not for accounting majors. Carries no credit toward master's degree in accounting. Design and use of cost management systems to support decision making and influence behavior; includes the economics of costs to processes, products, and customers; activity-based cost management; cost estimation; performance measurement; capital budgeting; and project budget statements. May involve evening exams. Prereq: Acct 202 or 205, and Engr 360 or Bus 301.

Acct **584 Federal and State Taxes II** (3 cr). See Acct J484/J584.

Acct **585 Gift and Estate Taxation** (3 cr). See Acct J485/J585.

Acct **586 Contemporary Management Accounting Issues** (3 cr). See Acct J486/J586.

Acct **590 Advanced Auditing Seminar** (3 cr). Independent auditor's role, legal responsibilities, and code of conduct; concepts, standards, and methods in audit judgment formulation; includes statistical and other sampling methods and EDP auditing techniques. Prereq: Acct 492 and 570.

Acct **592 Financial Accounting and Reporting Seminar** (3 cr). Accounting for complex modern business transactions including consolidations, partnerships, and financial instruments; students are expected to conduct research in the professional literature and document their findings and conclusions in cases where there may be no authoritative guidance; cases are considered from the perspective of the reporting entity, its auditors, the users of the financial statements and other stakeholders. Prereq: Acct 561 and 490.

Acct **598** (s) **Internship** (1-3 cr, max 3). Career relevant learning experience in actual work setting with professional-level responsibilities. Students work within an accounting related field (accounting, auditing, and taxation) and commit to a minimum of 50 hours of direct supervised work for each semester credit. A paper documenting relevance of work experience and a presentation to undergraduate accounting students may be required.

Acct **599** (s) **Research** (1-6 cr, max 6). May count only 3 cr toward degree. Student works with individual professor to design a research study, collect and analyze data, and prepare written report. Prereq: at least one course in research methodology and perm.

# Adult, Counselor, and Technology Education

**James A. Gregson, Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).**

ACTE **110 Technology and Society** (3 cr). Same as ITED 110. The relationship between technology and social change; previous course work in technology is not essential.

ACTE **200** (s) **Seminar** (cr arr). Prereq: perm.

ACTE **203** (s) **Workshop** (cr arr). Prereq: perm.

ACTE **204** (s) **Special Topics** (cr arr). Prereq: perm.

ACTE **299** (s) **Directed Study** (cr arr). Prereq: perm.

ACTE **J351/J551 Principles and Philosophy of Professional-Technical Education** (3 cr) (C). ACTE 351 same as AgEd 351; ACTE J351/J551 same as PTE J351/J551. Overview and interpretation of history, aims, and purposes of public education and professional-technical education; issues and programs comprising professional-technical education in Idaho and the U.S. Students who take course at grad level are reqd to complete additional assignments, papers, and/or presentations.

ACTE **400** (s) **Seminar** (cr arr). Prereq: perm.

ACTE **403** (s) **Workshop** (cr arr). Graded P/F. Prereq: perm.

ACTE **404** (s) **Special Topics** (cr arr). Prereq: perm.

ACTE **J405/J505 Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Professional development and enrichment. Additional projects/assignments reqd for grad cr.

ACTE **J415/J515 Instructional Strategies and Learning Styles** (3 cr). See PTE J415/J515.

ACTE **J418/J518 Learning Styles** (3 cr). Same as AdEd and PTE J418/J518. Identify and provide experience in administration, interpretation, and elements of theoretical bases for contemporary learning styles instruments. Additional projects/assignments reqd for grad cr.

ACTE **J426/J526 Instructional Design and Curriculum** (3 cr). ACTE 426 same as ITED 426; ACTE J426/J526 same as PTE J426/J526. Instructional design systems and curriculum development as a systematic method of designing, carrying out, and evaluating the total process of teaching and learning; based on research in human learning and communication, employing a combination of human and non-human resources to bring about effective instruction. Additional projects/assignments reqd for grad cr.

ACTE **430 Advisory Committees and Student Organizations** (3 cr). Organizing and maintaining effective advisory committees; development of leadership skills; techniques and procedures for establishing a professional-technical student organization.

ACTE **444 Diverse Populations and Individual Differences** (2-3 cr). Same as FCS 444. Examines the impact of individual differences on teaching and learning.

ACTE **445 Proseminar in Professional-Technical Education** (1 cr, max 2). Professional issues in education; orientation to practicum, career placement, and entry level teaching. Coreq: enrollment in senior practicum. Fall semester will require an additional 8-hr Saturday session for CPR and first aid training.

ACTE **457 Transitioning to Work** (3 cr). Same as BuEd 457. Planning and managing cooperative, technical preparation, and other transitional programs.

ACTE **460 Using Internet-Based Career Information in the Classroom** (2-3 cr). Preparation of new teacher candidates to utilize the vast array of career information on the Internet for assisting students in career planning.

ACTE **471 Practicum: Professional-Technical Education Teaching** (3-10 cr, max 10). Same as PTE 471. Secondary majors are reqd to enroll for 10 cr. Supervised teaching in approved professional-technical programs at secondary schools or area professional-technical schools. Graded P/F. Prereq: ED 314, or ACTE 426, PTE 472, GPA of 2.50, and perm of dept. (Submit application via director of ACTE to director of clinical experiences in teacher education.)

ACTE **484** (s) **Internship in Professional-Technical Education Teaching** (1-14 cr, max 28). Same as PTE 484. Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Prereq: perm of division; coreq: integrated course work and ED 401.

ACTE **499** (s) **Directed Study** (cr arr). Prereq: perm.

ACTE **501** (s) **Seminar** (cr arr). Prereq: perm.

ACTE **502** (s) **Directed Study** (cr arr). Prereq: perm.

ACTE **503** (s) **Workshop** (cr arr). Prereq: perm.

ACTE **504** (s) **Special Topics** (cr arr). Prereq: perm.

ACTE **505 Professional Development** (cr arr). See ACTE J405/J505.

ACTE **507 The Future of Education and Work** (3 cr). Same as PTE 507. Proactive study of the potential futures in education and work; examination of futurist theory and the change process.

ACTE **515 Instructional Strategies and Learning Styles** (3 cr). See PTE J415/J515.

ACTE **526 Analysis and Curriculum Development** (3 cr). See ACTE J426/J526.

ACTE **543 Administration and Supervision of Learning Programs** (3 cr). Same as AdEd, ITED, and PTE 543. Advanced study of the administrative and supervision responsibilities needed for learning enterprises and systems; personnel management and accountability in human resources development.

ACTE **555 Program Evaluation for the Training and Learning Enterprise** (3 cr). Same as PTE 555. Procedures for establishing the parameters of an evaluation, the role of formative/summative evaluations, evaluation strategies, designing mixed method evaluation and reporting.

ACTE **560 Advanced Theory and Practice of Career Development** (3 cr). See CASP 560.

ACTE **566 Classroom Counseling Strategies** (3 cr). Provides teachers with basic knowledge of counseling techniques for use in classroom and in individual meetings with students; required class for those seeking special needs certificate.

ACTE **570 Principles and Concepts of Research** (3 cr). Same as AdEd 570. Reasons and rationale for quantitative analyses; assumptions needed for selecting an analytical strategy.

ACTE **571 Accessing, Organizing, and Synthesizing Data** (3 cr). Same as AdEd 571. Uses of computer-based statistics packages, document retrieval services, and text-editing systems in research. Prereq: Stat 251 or perm.

ACTE **581 Theory, Practices, and Challenges of Leadership** (3 cr). Same as AdEd and PTE 581. Analysis and study of leadership of the human resource in organizations; theories, styles, and methods of effective leadership developed from past leaders blended with current models of leadership.

ACTE **582 Peer Coaching and Supervision for Educators** (2 cr). Observation techniques, conferencing, and feedback skills; structuring peer coaching programs.

# Adult Education

**James A. Gregson, Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).**

AdEd **400** (s) **Seminar** (cr arr). Prereq: perm.

AdEd **403** (s) **Workshop** (cr arr). Graded P/F. Prereq: perm.

AdEd **404** (s) **Special Topics** (cr arr). Prereq: perm.

AdEd **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree program, but may be used in a fifth-year program. Additional projects/assignments reqd for grad cr.

AdEd **J415/J515 Instructional Strategies and Learning Styles** (3 cr). See PTE J415/J515.

AdEd **J418/J518 Learning Styles** (3 cr). See ACTE J418/J518.

AdEd **ID&WS428 Program Development in Adult Education** (3 cr). WSU Ag Ed 401. Planning, development, implementation, and evaluation of adult education and training programs in a variety of settings.

AdEd **J473/J573 Foundations of Adult Education** (3 cr) (C). Philosophical, economic, sociological, and psychological bases of adult education; roles, limitations, and coordination of adult education, domestic and international programs--public and private sector. Additional projects/assignments reqd for grad cr.

AdEd **J474/J574 The Adult Learner** (3 cr) (C, 474). Psychological, social, and physiological characteristics of adult learners; relationships to family, friends, and fellow citizens.

AdEd **J475/J575 Strategies for Teaching Adults** (3 cr). Design and application of teaching strategies for learning domains and learning styles appropriate for adult learners.

AdEd **J476/J576 Communication Skills for Teachers of Adults** (3 cr). Development of communication skills for use with culturally diverse adults; verbal and nonverbal techniques for improving communication skills. Additional projects/assignments reqd for grad cr.

AdEd **498** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

AdEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

AdEd 500 (s) Master's Research and Thesis (cr arr).

AdEd **501** (s) **Seminar** (cr arr). Prereq: perm.

AdEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

AdEd **503** (s) **Workshop** (cr arr). Graded P/F. Prereq: perm.

AdEd **504** (s) **Special Topics** (cr arr). Prereq: perm.

AdEd **505** (s) **Professional Development** (cr arr). See AdEd J405/J505.

AdEd **510 Foundations of Workforce and Human Resource Education** (3 cr). Advanced study of the foundations and basis for workforce and human resource education programs.

AdEd **515 Instructional Strategies and Learning Styles** (3 cr). See PTE J415/J515.

AdEd **516 Life Span Development** (3 cr). Conceptual overview of stages of development from infancy through the aged and implications to the educational process.

AdEd **518 Learning Styles** (3 cr). See ACTE J418/J518.

AdEd **528 Program Planning and Development** (3 cr). Program planning and development strategies for learning enterprise workers.

AdEd **543 Administration and Supervision of Learning Programs** (3 cr). See ACTE 543.

AdEd **561 Helping Skills in Adult Education** (3 cr). Instruction in helping skills and problem management approaches for use in current professional and personal situations; skills for effective listening and to provide appropriate problem solving support.

AdEd **562 Conciliation Training** (3 cr). Training in mediation and conciliation skills that help people resolve common disputes, especially neighbor-to-neighbor disputes; based on recognized adult community conciliation training models.

AdEd **563 Mediation and Conflict Management** (3 cr). Designed for application in the classroom, at home, and in the community; skills include mediation strategies, negotiation skills, effective problem solving and conflict management techniques, and special issues such as confidentiality, ethics, handling impasse, power balancing, and handling violence.

AdEd **568 Writing for Publication** (3 cr). Development of knowledge, skills, and potential of researchers and other writers desiring to prepare and publish manuscripts in education or other professional and trade journals; technical and theoretical aspects of writing for publication and the process of manuscript preparation, submission, and editing.

AdEd **570 Principles and Concepts of Research** (3 cr). See ACTE 570.

AdEd **571 Accessing, Organizing, and Synthesizing Data** (3 cr). See ACTE 571.

AdEd **573 Foundations of Adult Education** (3 cr). See AdEd J473/J573.

AdEd **574 Psychology of Adult Learners** (3 cr). See AdEd J474/J574.

AdEd **575 Strategies for Teaching Adults** (3 cr). See AdEd J475/J575.

AdEd **576 Communication Skills for Teachers of Adults** (3 cr). See AdEd J476/J576.

AdEd **577 Organizational Development** (3 cr). Planned change strategies for human resources in organizations; motivation, training/re-training, assessing, and crafting the corporate culture through educational efforts; assessing the knowledge skill gaps in the human resources.

AdEd **581 Theory, Practices, and Challenges of Leadership** (3 cr). See PTE 581.

AdEd **583 Problems and Techniques of Group Leadership** (3 cr). Development of an understanding of groups, group behavior, development and socialization of groups, and nature of power, conflict, and leadership in groups; intended for adults who spend time with other adults in groups, committees, teams, or other relationship configurations; emphasis on leadership aspects of group behavior and participation.

AdEd **589 Critical Thinking** (2-3 cr). See EdAd 589.

AdEd **597** (s) **Practicum** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

AdEd **598** (s) **Internship** (cr arr). Supervised experience in teacher education, administration, supervision, or ancillary services in adult education. Graded P/F. Prereq: perm.

AdEd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

AdEd **600 Doctoral Research and Dissertation** (cr arr).

# Aerospace Studies

**Yoshio Smith, Head (UI Shoup Hall 83844-2005, phone 208/885-6129; or Washington State Univ. Kruegel Hall, phone 509/335-5598; http://www.wsu.edu:8080/~afrotc.**

Aero **101-102 The Air Force Today** (2 cr). Survey course that focuses on organizational structure and missions of Air Force organizations; "officership" and professionalism; introduction to communicative skills; weekly lab consisting of Air Force customs and courtesies, health and physical fitness, and drill ceremonies is mandatory for cadets. One lec and 2 hrs of lab a wk.

Aero **201-202 The Air Force Way** (2 cr). Survey course designed to facilitate the transition into the Air Force; topics include Air Force heritage, Quality Air Force, ethics and values, introduction to leadership, and continued application of communication skills; a weekly lab of applied leadership exercises is required for cadets. One lec and 2 hrs of lab a wk.

Aero **291 Four-Week Field Training Course** (2 cr). Intensive study of military education, experience in leadership, and management at an active Air Force installation. Prereq: Aero 101-102, 201-202, and perm of dept (by interview).

Aero **292 Six-Week Field Training Course** (6 cr). Applicants must apply by the November before attending field training. Intensive study of academic core course work and military education at an active Air Force installation. Prereq: junior standing and perm of dept (by interview).

Aero **299** (s) **Directed Study** (cr arr). Prereq: perm of dept.

Aero **311-312 Air Force Leadership and Management** (4 cr). Leadership and quality management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer; case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied; a weekly lab provides advanced leadership experience in officer-type activities, giving students the opportunity to apply leadership and management principles of this course (the lab is mandatory for cadets). Two lec and 2 hrs of lab a wk.

Aero **ID391 Private Pilot Ground School** (2 cr). WSU Aero 391. All aspects of preparation for the FAA Private Pilot Written Test.

Aero **ID392 Instrument Pilot Ground School** (2 cr). WSU Aero 392. All ground-based aspects of instrument flying to prepare students to take the FAA Instrument Pilot Written Test.

Aero **411-412 National Security Affairs/Preparation for Active Duty** (4 cr). An examination of the national security process, regional studies, advanced leadership ethics, and Air Force doctrine; focus of the military profession, officership, military justice, civilian control of the military, preparation for active duty, and refinement of communication skills; a lab consisting of advanced leadership experiences is mandatory for cadets. Two lec and 2 hrs of lab a wk.

Aero **499** (s) **Directed Study** (cr arr). Prereq: perm of dept.

# Agricultural Economics

**Larry W. Van Tassell, Head, Dept. of Agricultural Economics and Rural Sociology (39A Iddings Wing, Ag. Sc. Bldg. 83844-2334; phone 208/885-6264; e-mail larryv@uidaho.edu).**

AgEc **101 Agricultural Economics and Agribusiness** (3 cr) (C). Applications of economic and business principles to the agriculture industry; factors affecting production and marketing of agricultural products.

AgEc **ID&WS278 Principles of Farm and Ranch Management** (4 cr). WSU Ag Ec 340. AgEc WS278 available only to students at off-campus locations. Decision making and profit maximization using economic principles, records, enterprise analysis, and comparison of alternative farming practices. Three lec and one 2-hr lab a wk. Prereq: Econ 202 or perm.

AgEc **289 Agricultural Markets and Prices** (3 cr). Economics of agricultural markets and pricing institutions; analysis of supply, demand, elasticity, futures markets; institutional arrangements in food marketing. Prereq or coreq: Econ 202.

AgEc **332 Economics of Agricultural Development** (3 cr). Problems associated with the economics of development of major agricultural areas of the world. Prereq: principles of economics or perm.

AgEc **356 Agricultural Programs and Policies** (3 cr). Goals, methods, results of economic programs and policies in agriculture, including role of governmental and farm organizations. Prereq: Econ 201 and 202.

AgEc **ID361 Farm and Natural Resource Appraisal** (3 cr). Same as For 361. WSU Ag Ec 361. Methods; factors affecting the value of land and related resources; valuations for loans, sale, assessment, condemnation, and other purposes; procedures used by governmental and commercial agencies. One 1-day field trip. Prereq: AgEc 278 or Econ 202 or perm.

AgEc **370 Natural Resource Management** (2 cr). Course available only to students at off-campus locations. Efficiency, equity, resource conservation, and environmental preservation as management goals; principles of resource valuation; single-use and multiple-use management; property rights, externalities, and related policy issues; methods for cost-benefit, trade-off, and economic and environmental impact analysis; current resource conflict issues. Prereq: Econ 201 and Math 143.

AgEc **371 Public Law and Policy Analysis** (3 cr) (AgEc 470). Course available only to students at off-campus locations. Policies guiding the homesteading and economic development of western states; laws and policies guiding the regulation and use of water grazing, timber, and mineral resources. The significance of the Prior Appropriations Doctrine behind its familiar role in water law and policy is emphasized. Prereq: Econ 202 or equivalent.

AgEc **383 Economics for Natural Resource Managers** (3 cr). See For 383.

AgEc **391 Agribusiness Management** (3 cr). Economic theory of business; applications of management to agricultural processing and service firms; accounting, statistics, and efficiency studies for problem-solving. Prereq: Econ 202 and 3 cr in accounting.

AgEc **394 Analytical Techniques in Agribusiness and Economics** (3 cr). Linear equations, linear programming, marginal analysis, and statistical methods applied to problem solving in agribusiness and economics. Prereq: Econ 352 and Math 160 or equiv.

AgEc **398** (s) **Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

AgEc **404** (s) **Special Topics** (cr arr). Prereq: perm.

AgEc **J409/J509 Mathematical Economics** (3 cr). Same as Econ J409/J509. Economic models, application of matrix algebra and calculus to economics, comparative statics, optimization models, and mathematical programming. Primarily designed for graduate students; undergraduate students intending to pursue graduate studies or inclined to develop greater quantitative rigor may enroll with permission of the instructor and advisor. Prereq: Math 170 or equiv, Econ 351-352 or equiv, or perm.

AgEc **WS430 Financing Agribusiness Firms** (3 cr). WSU Ag Ec 430.

AgEc **WS435 Natural Resource Law** (3 cr). WSU Ag Ec 435. Analysis of federal and state courts resolution of real-world conflicts in land and water use.

AgEc **447 Economics of Developing Countries** (3 cr). See Econ 447.

AgEc **451 Land and Natural Resource Economics** (3 cr). Agricultural, forest, and mineral land use and classification; factors affecting land use; ownership, tenure, taxation, values, credit, and governmental policies. Prereq: Econ 352.

AgEc **453 Agricultural Price Analysis** (3 cr). Analytical tools for explaining and predicting price behavior of agricultural products; application of economics and statistics to price analysis. Prereq: Econ 352 and Stat 251, or perm.

AgEc **ID467 Economics of Rural Community Development** (3 cr). WSU Ag Ec 467. Economic theory, analytical methods, and literature relevant to study of development of rural areas. Prereq: Econ 201 and 202.

AgEc **471 Agricultural and Food Policy Issues** (3 cr). Course available only to students at off-campus locations. Principles of agricultural and food policy formulation; agricultural adjustment processes; agricultural price and income policies in relation to land use, water, and rural development policies; interrelationships among U.S. and foreign agriculture and trade policies. Prereq: Econ 201.

AgEc **481 Agricultural Markets in a Global Economy** (3 cr). Analysis of agricultural market competition and performance in a global economy; economics of global food and commodity markets and trade; economic principles applied to interaction of economic events in the world food economy. Prereq: Econ 352 or perm.

AgEc **489 Understanding and Using Futures and Options Markets** (2 cr). How futures and options markets work, types of futures and options markets, a practical understanding of their role as investment and risk management tools, and individual student management of a simulated futures and options trading account. Prereq: Math 160 or higher and Econ 201, or perm.

AgEc **493 Agricultural Production Economics** (3 cr). Economic theory related to agricultural production at the enterprise, firm, and industry levels. Prereq: AgEc 278 and Econ 352.

AgEc **499** (s) **Directed Study** (cr arr). Prereq: perm.

AgEc **500 Master's Research and Thesis** (cr arr).

AgEc **501** (s) **Seminar** (cr arr). Prereq: perm.

AgEc **502** (s) **Directed Study** (cr arr). Prereq: perm.

AgEc **507 Research Methodology** (3 cr). Same as Econ, FCS, and Soc 507. Theoretical background of the scientific method applied to social science research; organization, procedures, reporting, and evaluation of research. Prereq: grad standing and perm.

AgEc **509 Mathematical Economics** (3 cr). See AgEc J409/J509.

AgEc **ID&WS510 Advanced Microeconomics** (3 cr). See Econ 510.

AgEc **WS520 Regional Economics** (3 cr). WSU Ag Ec 520. Construction of multisector economic models and their use in regional policy analysis.

AgEc **522 Macroeconomic Analysis** (3 cr). See Econ 522.

AgEc **524 Agricultural Trade and Development** (3 cr). Economics of international trade and development, with emphasis on policy and research issues that arise from interaction of economic events in the world food economy. Prereq: Econ 446 or perm.

AgEc **525 Econometrics** (3 cr). Same as Econ and Stat 525. Theory and practice of multiple regression methods; applications to the study of economic and other phenomena; use of computer regression programs. Prereq: 3 cr in statistics.

AgEc **528 Advanced Production Economics** (3 cr). Theory and application of production economics; production functions, technological change, operations research, linear programming. Prereq: AgEc 493 or equiv, and Stat 401 or AgEc 525.

AgEc **551 Natural Resource and Environmental Economics** (3 cr). Allocation of natural resources over time and among uses; environmental policy; welfare economics; project evaluation and benefit cost analysis; valuation of extramarket goods. Prereq: Econ 352 or perm.

AgEc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Agricultural Education

**Lou E. Riesenberg, Head, Dept. of Agricultural and Extension Education (Agricultural and Extension Education Bldg., 1134 West 6th 83844-2040; phone 208/885-6358; e-mail lriesenb@uidaho.edu).**

AgEd **180 Introduction to Agricultural Education** (1 cr). Overview of purposes and career opportunities in agricultural education; role of secondary agriculture instructor in secondary school systems. (Accelerated; first half of fall semester)

AgEd **181 Introduction to Extension Education** (1 cr). Overview of purpose and career opportunities available in extension education profession; role of cooperative extension faculty; basic principles and practices of Cooperative Extension System including related legislation. (Accelerated; second half of fall semester)

AgEd **200** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **211 Agricultural Education Skills** (1 cr). Technical agriculture skills applicable to teaching agriculture. (Alt/yrs)

AgEd **252 Developing Organizations** (1 cr). Assisting community, collegiate, or social organization members, officers, or committee chairs to better serve the organization and to acquire practical organizational and management skills that will help them throughout their academic and professional careers.

AgEd **253 Parliamentary Procedure** (1 cr). Basic knowledge and skills related to parliamentary procedure and the orderly conduct of business in meetings.

AgEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **306 Exploring International Agriculture** (2 cr). General overview of agriculture around the world and the opportunity to develop an in-depth knowledge of agriculture in a country or region of student's choice.

AgEd **351 Principles and Philosophy of Professional-Technical Education** (3 cr). Same as PTE 351. Overview and interpretation of history, aims, and purposes of public education and professional-technical education; issues and programs comprising professional-technical education in Idaho and in the nation.

AgEd **358 Supervising FFA and SAE Programs** (2 cr). Role of secondary agriculture instructors in supervising FFA and Supervised Agricultural Experience programs.

AgEd **359 Developing 4-H Youth Programs** (2 cr). Planning, development, and leadership principles of 4-H/youth program; role of 4-H/youth educator and volunteer leader. Web-based course.

AgEd **400** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **404** (s) **Special Topics** (cr arr). Prereq: perm.

AgEd **WS440 Principles of Vocational Education** (2-3 cr). WSU Ag Ed 440. Course available only to students at off-campus locations.

AgEd **J448/J548 Principles and Practices of Extension Education** (3 cr). Philosophy and principles, social and economic significance of extension education in agriculture, home economics, and 4-H youth development; examination of behavioral science concepts in organization, development, and management of extension programs. Cr earned in AgEd 548 by completion of in-depth paper on some aspect of extension education. Prereq for AgEd 548: perm. (Alt/yrs)

AgEd **J450/J550 Developing Leaders** (2 cr). An action-oriented, participatory examination of aspects of "leadership." Designed to stir students' excitement about becoming leaders in school, home, and community; help students develop enthusiasm and interest in focusing on their vision for the future; individual and group activities allow students to identify their leadership philosophy, enhance their strengths, and improve on their weaknesses. Additional projects/assignments reqd for grad cr.

AgEd **451 Communicating in Agriculture** (2 cr). Principles and practices of disseminating knowledge and information related to agricultural sciences, environment, and natural resources to clients and the general public; communications concepts, technology, and presentation skills that will help agricultural and natural resource professionals communicate effectively within their chosen profession.

AgEd **452 Methods of Teaching Agriculture** (3 cr). Procedures of identifying and selecting instructional methods and materials, planning, and student evaluation criteria to effectively teach agriculture. Five lec and one 3-hr lab a wk for 7 wks.

AgEd **453 Program Planning in Secondary and Adult Agricultural Education** (1 or 3 cr). Planning, organizing, and implementing secondary and adult programs in agriculture. Includes only the adult section of the course when taken for 1 cr. Five lec a wk for 8 wks.

AgEd **454 Facilities Organization and Management** (2 cr). Applications of efficient planning, organizing, and teaching skills reqd in management of lab and shop facilities. Four lec and one 3-hr lab a wk for 8 wks.

AgEd **459 Cooperative Extension Practicum** (1-9 cr, max 9). Observation, participation, and supervised experiences in a selected extension office. Prereq: jr standing and perm.

AgEd **460 Practicum: Secondary School Teaching in Agriculture** (10 cr). Ten wks of practical experience student teaching in secondary agriculture program; in addition each student will be expected to complete one wk of early field-based experience at his or her student teaching center, to be completed the first wk of school after Jan. 1. Prereq: GPA of 2.50, admission to the Teacher Education Program, and perm of dept.

AgEd **461 Student Teaching Portfolio** (2 cr). Summary of the 10-week practicum experience; a notebook portfolio to include unit lesson plans, daily teaching plans, videotape example of teaching, report of early field experience, daily journal, summary of 10 positive and 10 challenging teaching experiences, supervisory assessments of teaching by cooperating instructor and university supervisor, and cooperating teacher's final evaluation.

AgEd **470 Proseminar in Agricultural Education** (1 cr, max 2). Professional issues in agricultural education. Fall semester includes additional 8-hour Saturday session for CPR and first aid training.

AgEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **500 Master's Research and Thesis** (cr arr).

AgEd **501** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **503** (s) **Workshop** (cr arr). Prereq: perm.

AgEd **504** (s) **Special Topics** (cr arr). Prereq: perm.

AgEd **548 Principles and Practices of Extension Education** (3 cr). See AgEd J448/J548.

AgEd **550 Developing Leaders** (2 cr). See AgEd J450/J550.

AgEd **557 Problems in Teaching Agriculture** (1-3 cr, max 9). Methods and new developments. Prereq: perm.

AgEd **560 Beginning Teacher Induction in Agricultural Education** (1 cr, max 2). On-site clinical supervision, technical assistance, and leadership to beginning teachers of secondary agricultural education programs.

AgEd **562 Instructional Methods in Agricultural Education** (3 cr). Innovations and advanced principles in teaching methods and materials.

AgEd **583 Program Evaluation and Planning in Agricultural and Extension Education** (3 cr). Criteria and procedures for evaluation of programs in agricultural and extension education; selection and construction of evaluation devices; use of results in program planning and implementation.

AgEd **598** (s) **Internship** (cr arr). Prereq: perm.

AgEd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Agricultural Science and Technology

**Lou E. Riesenberg, Head, Dept. of Agricultural and Extension Education (Agricultural and Extension Education Bldg., 1134 West 6th- 83844-2040; phone 208/885-6358; e-mail lriesenb@ uidaho.edu).**

PREREQUISITE: Enrollment in courses in this subject field requires permission of the department.

Ag **200** (s) **Seminar** (cr arr). Prereq: perm.

Ag **299** (s) **Directed Study** (cr arr). Prereq: perm.

Ag **WS310** **Accessing Information for Research** (1 cr). WSU GenEd 300. Course available only to students at off-campus locations.

Ag **398** (s) **Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm.

Ag **400** (s) **Seminar** (cr arr). Prereq: perm.

Ag **404** (s) **Special Topics** (cr arr). Prereq: perm.

Ag **495** (s) **Agricultural Ambassadors** (cr arr). Graded A/P/F.

Ag **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Agricultural Systems Management

**Charles L. Peterson, Interim Head, Dept. of Biological and Agricultural Engineering (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu).**

ASM **107 Beginning Welding** (2 cr). Principles of operation, use, and care of arc and acetylene welding equipment. One lec, one 2-hr lab, and two hrs of individual practice a wk. Enrollment limited to 12 per section.

ASM **112 Introduction to Agricultural Systems Management** (3 cr). Application of basic engineering principles to solving problems dealing with farm machinery, buildings, processing, irrigation, and energy use. Prereq: high school algebra.

ASM **200** (s) **Seminar** (cr arr). Prereq: perm.

ASM **202 Agricultural Shop Practices** (2 cr). Primarily for agricultural mechanization and agricultural education students. Operation, use, and care of shop tools and equipment. One lec and one 3-hr lab a wk.

ASM **WS203 Agricultural Structures** (3 cr). WSU AgTM 203.

ASM **204** (s) **Special Topics** (cr arr). Prereq: perm.

ASM **210 Small Engines** (2 cr). Principles of engine operation, tune-up, and maintenance; repair and overhaul of small engines. One lec, one 2-hr lab, and two hrs of individual practice a wk. Enrollment limited to 12 per section.

ASM **240 Computer Applications in Biological Systems** (3 cr). Application of computers in production agriculture; microcomputer principles and operation, disk operating systems; word processing; spreadsheets, database management and other application programs; introduction to one program language. Two lec and one 2-hr lab a wk. Prereq: three credits of college math or perm.

ASM **299** (s) **Directed Study** (cr arr). Prereq: perm.

ASM **304 Agricultural Fluid Power Systems** (2 cr). Fundamentals of hydraulic power and control as applied to agricultural machines and processing equipment; component function and sizing; schematic diagrams. One 3-hr lab a wk. Prereq: Math 160, Phys 100 or perm.

ASM **ID&WS305 Agricultural Machinery Systems** (3 cr). WSU AgTM 305. Application, management, adjustment, and care of farm equipment; machinery fabrication, and power transmission. Two lec and one 3-hr lab a wk.

ASM **ID306 Agricultural Structures and Environmental Systems** (3 cr). WSU AgTM 306. Planning farm buildings, construction materials, beam and column design, insulation and ventilation for environmental control. Two lec and one 3-hr lab a wk.

ASM **WS312 Engines and Tractors** (3 cr). WSU AgTM 312.

ASM **ID&WS315 Irrigation Systems and Water Management** (3 cr). WSU AgTM 315. Irrigation methods, irrigation management, water rights, conveyance and measurement, pumps, soil-water-plant relationships, and drainage. Two lec and one 3-hr lab a wk. Prereq: Soil 205, Math 160 or perm.

ASM **ID&WS331 Electric Power Systems for Agriculture** (3 cr). WSU AgTM 331. Basic circuits; wiring and the code; motors and controls; heating, lighting, and power. Two lec and one 3-hr lab a wk.

ASM **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

ASM **400** (s) **Seminar** (cr arr). Prereq: perm.

ASM **404** (s) **Special Topics** (cr arr). Prereq: perm.

ASM **ID409 Agricultural Tractors and Power Units** (3 cr). WSU AgTM 409. Selection, operation, adjustment, service, and testing; fuels and combustion; fuel, lubrication, cooling, and electrical systems; tractor power trains, hitching, traction, and safety. Three 1-hr lec and one 3-hr lab a wk.

ASM **412 Agricultural Safety and Health** (2 cr). Covers a broad variety of items related to agricultural safety and health: identification of safety and health hazards, maximizing capabilities of farmers and ranchers with disabilities, grain and livestock handling, chemical and gases handling, and fire safety; corrective measures to eliminate hazards and application of information learned to student's own situation. (Alt/yrs)

ASM **WS413 Human and Machinery Risk Management** (3 cr). WSU AgTM 413.

ASM **414 Analysis of Agricultural Systems I** (2 cr). Analysis of agricultural systems and equipment associated problems in food and agricultural industries; linear programming, simulation, critical path methods, and other system analysis techniques considering

physical, social, and economic constraints; provides students with the knowledge and computer skills to better manage resources for the evolving agricultural industries. One 1-day field trip. Prereq: ASM 240 or equiv, Math 160, and sr standing.

ASM **424 Analysis of Agricultural Systems II** (2 cr). Management of agricultural systems through team solution of management problems posed by agribusiness managers, farmers, extension specialists, and other industry consultants; application of management principles to give students experience in solving realistic problems faced by agribusiness managers; critical evaluation of results by students, staff, and consultants. One 1-day field trip. Prereq: ASM 414.

ASM **ID&WS433 Agricultural Processing Systems** (3 cr). WSU AgTM and FSHN 433. Grain cleaning, mixing, and drying; materials handling, heat transfer, pumps, fans, refrigeration, and instrumentation. Two lec and one 3-hr lab a wk; one 1-day field trip. Prereq: Math 160.

ASM **WS434 Agricultural Processing Laboratory** (1 cr). WSU AgTM 434.

ASM **WS435 Instrumentation for Data Acquisition in Agriculture** (3 cr). WSU AgTM 435/535.

ASM **498** (s) **Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm.

ASM **499** (s) **Directed Study** (cr arr). Prereq: perm.

# American Indian Studies

**Rodney P. Frey, Acting Director, American Indian Studies Program (116 Phinney Hall 83844-1110; phone 208/885-6268; rfrey@uidaho.edu; http://www.uidaho.edu/~rfrey/indianminor.htm).**

AIST **401 Contemporary American Indian Issues** (3 cr). Identifies and addresses key cultural, economic, educational, legal, resource, and sovereignty issues facing Indian communities today; an essential component involves presentations by representatives from the Indian communities. Prereq: AmSt 201, Anth 329, Engl 484, Hist 431.

AIST **404** (s) **Special Topics** (cr arr). Prereq: perm.

AIST **495 Practicum** (cr arr). Supervised practicum in an Indian community setting, integrating academic study with work experience; requires formal plan of activities to be approved by the on site supervisor and assigned faculty member; a final written report will be evaluated by the assigned faculty member. Prereq: perm.

AIST **498** (s) **Internship** (cr arr). Supervised internship in an Indian community setting, integrating academic study with work experience; requires formal plan of activities to be approved by the on site supervisor and assigned faculty member; a final written report will be evaluated by the assigned faculty member. Prereq: perm.

AIST **499** (s) **Directed Study** (cr arr). Prereq: perm.

# American Studies

**Walter A. Hesford, Coordinator, American Studies Program (121 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6941); Sheila O'Brien and Mary H. DuPree, Co-coordinators.**

AmSt **101 American Identities** (3 cr). May be used as core credit in *J-3-d* or *J-3-e* (pilot offering). In this interdisciplinary course, students examine and interpret the expression of a diversity of American values and visions, including foundational, historical, and contemporary texts; focus on developing skills in reading material from several disciplines and in critical thinking, research, and writing.

AmSt **201 Introduction to Ethnic Studies** (3 cr). Surveys major themes and topics in ethnic studies with a comparative emphasis on experiences of Native Americans, African Americans, Latinos/Hispanics, and Asian Americans; a multidisciplinary course that encourages participation facilitating student-to-student dialogue and allowing students to collaborate in creating a learning environment in which knowledge and experience is shares; assists students in becoming more aware of their own locations in the context of race and ethnic structures in the U.S.

AmSt **301 Studies in American Culture** (3 cr). *May be used as core credit in J-3-d.* In-depth exploration of a significant theme or issue in American society from a variety of disciplinary perspectives; specific focus may vary, but includes consistent incorporation of a historical dimension, attention to inequalities and diversity, and analysis of aspects of contemporary American culture including a global context. Prereq: Engl 102; junior standing or perm.

AmSt **404** (s) **Special Topics** (cr arr). Prereq: perm.

AmSt **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Animal and Veterinary Science

**Richard A. Battaglia, Head, Dept. of Animal and Veterinary Science (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; e-mail susanf@uidaho.edu).**

AVS **101 Animal and Veterinary Orientation** (2 cr). Career opportunities discussed to help students develop a strong sense of future direction.

AVS **ID&WS109 The Science of Animals that Serve Humanity** (3 cr). WSU A S 101. Role of animal agriculture in providing food, work, and pleasure for mankind; intro to animal genetics, physiology, endocrinology, nutrition, and other disciplines essential for an understanding of the contributions of animals in the expanding human population. Coreq for majors in the Animal/Vet Sc Dept: AVS 110.

AVS **110 Animal Husbandry Laboratory I** (1 cr). Laboratory to support teaching in AVS 109; introductory laboratories designed to familiarize students with approved management practices of domestic livestock. Graded P/F. One 2-hr lab a wk. Coreq: AVS 109.

AVS **WS166 Horse Management Laboratory** (1 cr). WSU A S 166. Introductory laboratory designed to familiarize students with approved management practices for horse enterprises. Graded P/F.

AVS **ID172 Principles and Practices of Dairy Science** (3 cr). WSU A S 172. An overview of the dairy industry and the science of producing milk and reproduction, udder health and mastitis, milk marketing, and dairy product quality and safety; approved management practices for dairy enterprise.

AVS **ID&WS174 Beef Cow Calf Management Laboratory** (1 cr). WSU A S 174. Management practices associated with a beef cow calf enterprise for students without experience. Graded P/F.

AVS **ID176 Sheep Management Laboratory** (1 cr). WSU A S 176. Management practices associated with a farm flock sheep enterprise. Graded P/F.

AVS **WS178 Swine Management Laboratory** (1 cr). WSU A S 178. Management practices associated with a swine enterprise. Field trip and special clothing required. Graded P/F.

AVS **ID&WS205 Introduction to Animal Nutrition** (3 cr). WSU A S 213. May not be used for major cr by majors in animal science or range-livestock management. Functions, metabolism, and requirements of nutrients with applications to the diets of animals and birds.

AVS **209 Science of Animal Husbandry** (3 cr). Fundamental concepts of animal husbandry and its foundation in the science of animal production; introduction to the technical subject matter of animal production. Prereq: AVS 109.

AVS **210 Animal Husbandry Laboratory II** (1 cr). Laboratory to support teaching in AVS 209; introductory applications of fundamentals of animal science to domestic animal management and production. Graded P/F. One 2-hr lab a wk. Coreq: AVS 209.

AVS **ID&WS218 Artificial Insemination and Pregnancy Detection** (2 cr). WSU A S 454. Anatomy and physiology of pregnant and nonpregnant reproductive systems; artificial insemination; male reproduction; pregnancy detection in domestic livestock. Two 2-hr lec-labs a wk. Enrollment limited to 20 students. Preregistration required; consult dept administrator. Prereq or coreq: AVS 222 and perm.

AVS **221 Growth and Development of Farm and Companion Animals** (3 cr). Course involves general biology of farm and companion animals. Topics include biochemistry, cellular biology, growth biology, physiology, endocrinology, and metabolism related to domestic agricultural and companion species. Prereq: AVS 109 and 209.

AVS **222 Animal Reproduction and Breeding** (4 cr). Provides fundamental information about reproduction, lactation, and breeding of domestic animals; topics include functional anatomy, basic physiology, and endocrinology relating to reproduction and lactation; animal breeding involves the mathematical and conceptual framework of genetic evaluation.

AVS **ID&WS263 Live Animal and Carcass Evaluation** (3 cr). WSU A S 260. Evaluation and selection of cattle, sheep, and swine for herd replacement; evaluation of market animals; carcass evaluation and grading, slaughter procedures, and factors that affect quality and quantity of meat; visual and objective appraisals. One lec and two 3-hr lab a wk; four 1-day and four 1/2-day field trips or equiv time.

AVS **264 Consumer Meats** (3 cr). Same as FST 264. Duplicate cr not allowed in AVS/FST 363 and 264. Meat as a food; meat inspection, pricing, selection, processing, storage, and cookery. Special clothing and equipment reqd. Two lec and one 3-hr lab a wk.

AVS **265 Abattoir Skills** (1 cr). Practical experience in meat animal slaughter. Special clothing and equipment reqd. Prereq: AVS 363 or 264.

AVS **299** (s) **Directed Study** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

AVS **304 Advanced Animal Evaluation** (3 cr). Emphasis on use of records in selection and use of carcass value in pricing live market animals; factors that affect the economic value of meat animals. Students participate in live animal-carcass evaluation contests. One lec and two 3-hr labs a wk; four 1-day and four 1/2-day field trips in addition to contests or equiv time. Prereq: AVS 263.

AVS **ID&WS305 Animal Nutrition** (4 cr). WSU A S 314. Introduction of the concepts and principles of animal nutrition; fundamentals of nutrients and their digestion and metabolism; various biochemical pathways and processes for nutrient utilization; nutrition fundamentals for a range of monogastric and ruminant animals. Prereq: Biol 112 and Chem 111.

AVS **ID&WS306 Feeds and Ration Formulation** (4 cr). WSU A S 313. Application of principles of nutrition to ration formulation for poultry and livestock; evaluating feedstuffs for use in ration formulation. Three lec and one 2-hr lab a wk. Prereq: AVS 205 or 305.

AVS **WS315 Introduction to Animal Growth and Development** (3 cr). WSU A S 345.

AVS **WS316 Introduction to Skeletal Muscle Physiology** (3 cr). WSU A S 346.

AVS **WS330 Genetics of Farm Animals** (3 cr). Same as Gene 320. WSU A S 330. Genetic principles applied to breeding of farm animals. Prereq: Gene 314, Stat 251, and AVS 222.

AVS **363 Animal Products for Human Consumption** (3 cr). Same as FST 363. The meat, dairy, and egg industries, including product produced, processed, safety (HACCP), nutrition, distribution, quality, quantity, palatability, health, cooking, home storage, and consumer concerns. Special clothing and equipment required. Three lec and one 2-hr lab a wk. Prereq: Biol 112.

AVS **WS366 Equine Science and Management** (3 cr). WSU A S 366. Development, functional use, behavior, and management of the horse. Field trip reqd. Prereq: AVS 166 or perm.

AVS **371 Anatomy and Physiology** (4 cr). Structure and function of tissues and organ systems of domestic and wild animals. Three lec and one 2-hr lab a wk.

AVS **398** (s) **Internship** (cr arr). Cooperative programs with producers, allied industry and food processing industries within the state. Graded P/F. Prereq: perm.

AVS **403** (s) **Workshop** (cr arr). Normally offered in nutrition, breeding, products, and management. Graded P/F. Prereq: perm.

AVS **J407/J507 Selected Topics in Dairy Cattle Nutrition** (3 cr). Current literature topics in dairy cattle nutrition. Prereq: AVS 306.

AVS **J411/J511 Ruminant Nutrition** (3 cr). Intro to anatomy of digestive tract of ruminant; focus on ruminal and postruminal carbohydrate, protein, and lipid metabolism; ruminal bacteria, protozoa and fungi, microbe-microbe interactions and their role in nutrients utilization; compartmentation of the rumen and microbial protein synthesis; practical aspects of ruminant nutrition and intro to current feeding systems; research techniques in studying ruminal degradation and digesta kinetics. Additional projects/assignments reqd for grad cr. Prereq: perm. (Alt/yrs)

AVS **ID&WS413 Physiology of Lactation** (3 cr). WSU A S 452. Anatomy, physiology, and endocrine control of mammary development and milk secretory process. Prereq: Biol 202 (AVS 371 recommended) or perm. (Alt/yrs)

AVS **J430/J530 Advanced Topics in Embryo Physiology** (3 cr). Analysis of biochemical, endocrine, and anatomical events of embryonic development with emphasis on lab and domestic animals; critical analysis of current scientific literature; lab techniques in developmental biology. Outside reading, class presentation, and term paper reqd; additional projects/assignments reqd for grad cr. Two lec and one lab a wk. (Alt/yrs)

AVS **ID&WS431 Topics in Meat Science and Muscle Physiology** (1 cr). WSU A S 340. Readings, discussions, seminars, and tours related to most current disposition of meat science (processing, safety, consumers) and muscle biology (research and teaching).

AVS **450 Issues in Animal Agriculture** (1 cr). The capstone experience for seniors in AVS; students will present information on selected topics and propose solution to current problems; emphasis on problem solving using integration of information across disciplines. Prereq: Sr standing.

AVS **ID&WS-J451/ID&WS-J551 Endocrine Physiology** (3 cr). WSU A S 451/551. Same as Biol J417/J517. Structure and physiology of glands of internal secretion and their hormonal effects on processes of growth, development, metabolism, and production of vertebrates; minor emphasis on invertebrates. Completion of term paper reqd for grad cr. Prereq: Biol 202 and MMBB 380.

AVS **ID&WS452 Physiology of Reproduction** (4 cr). WSU A S 350. Physiology of reproduction; growth, structure, development, endocrinology, and control of reproductive function with emphasis on farm animals. Three lec and one 2-hr lab a wk.

AVS **J463/J563 Advances in Meat Science** (3 cr). Development of muscle and its conversion to meat; factors influencing muscle deposition, structure, chemistry, composition, palatability, nutritional value, safety, and quality. Additional projects/assignments reqd for grad cr.

AVS **WS466 Horse Production** (3 cr). WSU A S 466. Principles of breeding, feeding, and management of horses. Field trip required. Enrollment limited to 10. Prereq: AVS 205, 222, and perm.

AVS **471 Animal Disease Management** (3 cr). Principles of immunity and disease resistance, transmission, and prevention; clinical signs, pathogenesis, and control of major diseases of economic importance in domestic animals Prereq: Jr standing.

AVS **ID&WS472 Dairy Cattle Management** (3 cr). WSU A S 472. Establishing a dairy farm, housing and managing large dairy herds, selection of breeding cattle, and marketing quality milk. One 4-day field trip. Prereq: AVS 205 and 222 or equiv.

AVS **ID&WS474 Beef Cattle Science** (3 cr). WSU A S 474. Breeding, feeding, and management; commercial and purebred enterprises; management of beef cattle on ranges, pasture, and in the feedlot. One 1-day field trip. Prereq: AVS 205 and 222 or equiv.

AVS **WS475 Advanced Dairy Management** (2 cr). WSU A S 473. Application of concepts of dairy cattle management to practical situations. One lec and 1-2 hrs of lab a wk. Prereq: AVS 472.

AVS **ID476 Sheep Science** (3 cr). WSU A S 476. Application of principles of genetics, reproduction, nutrition, health, and marketing to the management of commercial and purebred sheep; new developments related to sheep industry; production, evaluation, and use of wool. Two lec and one 2-hr lab a wk; one 1-day field trip or equiv time. Prereq: AVS 205 and 222 or equiv.

AVS **WS478 Swine Production** (3 cr). WSU A S 478. Principles of breeding, feeding, management, and marketing of swine. Two 2-hr lec-labs a wk; two 1-day field trips or equivalent time. Prereq: AVS 205 and 222 or equiv.

AVS **ID&WS485 Animal Welfare** (3 cr). WSU A S 285. Ethical considerations and welfare of animals used as companions, for food, and in scientific research. Prereq: Biol 112.

AVS **WS488 Perspectives in Biotechnology** (3 cr). WSU A S 488. Theory and application of biotechnology in agriculture, industry, and medicine; methodological, environmental, social, and economic concerns.

AVS **499** (s) **Directed Study** (1-6 cr, max arr). Prereq: perm of dept.

AVS **500 Master's Research and Thesis** (cr arr). Graded P/F.

AVS **501** (s) **Seminar** (cr arr). Prereq: perm.

AVS **502** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

AVS **503** (s) **Workshop** (cr arr). Prereq: perm.

AVS **504** (s) **Special Topics** (cr arr). Prereq: perm.

AVS **507 Selected Topics in Dairy Cattle Nutrition** (3 cr). See AVS J407/J507.

AVS **WS510 Digestion and Nutrient Utilization in Animals** (2 cr). WSU A S 510.

AVS **511 Ruminant Nutrition** (3 cr). See AVS J411/J511.

AVS **WS512 Advanced Nutrient Metabolism** (2 cr). WSU A S 507. (Alt/yrs)

AVS **513 Protein and Energy Nutrition** (3 cr). Current concepts in protein and energy metabolism and function relating to nutrients reqd for maintenance, growth, and development of animals. Prereq: AVS 305, MMBB 380 or equiv.

AVS **514 Physiology of Nonruminant Nutrition** (3 cr). Physiology of digestion, absorption, and metabolism of nutrients in monogastric animals and birds; biological evaluation of nutrients and nutritional interrelationships. Prereq: perm. (Alt/yrs)

AVS **WS516 Mineral and Vitamin Metabolism** (4 cr). WSU A S 513.

AVS **ID&WS520 Seminar in Animal Physiology** (1 cr, max arr). WSU A S 540. Current topics in animal physiology.

AVS **ID&WS526 Advanced Reproduction** (4 cr). WSU A S 550. (Alt/yrs)

AVS **530 Advanced Topics in Embryo Physiology** (3 cr). See AVS J430/J530.

AVS **WS538 Neuroendocrinology** (3 cr). WSU V Ph 538.

AVS **ID&WS551 Endocrine Physiology** (3 cr). See AVS J451/J551.

AVS **ID&WS560 Domestic Animal Growth and Development** (3 cr). WSU A S 560. Development, differentiation, growth, and endocrine regulation of major organ systems in domestic animals. Prereq: AVS 513, MMBB 380, and perm.

AVS **563 Advances in Meat Science** (3 cr). See AVS J463/J563.

AVS **WS595 Cytokines and Their Role in Reproduction** (2 cr). WSU A S 598.

AVS **WS596 Advanced Topics in Animal Science** (1-2 cr, max arr). WSU A S 598.

AVS **597** (s) **Practicum** (cr arr). Prereq: perm.

AVS **598** (s) **Internship** (cr arr). Prereq: perm.

AVS **600 Doctoral Research and Dissertation** (cr arr). Graded P/F.

# Anthropology

**Donald E. Tyler, Chair, Dept. of Sociology/Anthropology/Justice Studies (101 Phinney Hall 83844-1110; phone 208/885-6751).**

PREREQUISITE: Ordinarily three credits in lower-division courses in anthropology are required for registration in upper-division courses in this field; other exceptions by permission.

Anth **100 Introduction to Anthropology** (3 cr). *May be used as core credit in J-3-e.* Basic theories, methods, and findings of human paleontology, prehistory, and culture.

Anth **200** (s) **Seminar** (cr arr). Prereq: perm.

Anth **203** (s) **Workshop** (cr arr). Prereq: perm.

Anth **204** (s) **Special Topics** (cr arr). Prereq: perm.

Anth **220 Peoples of the World** (3 cr). Societies of Eurasia, Africa, Americas, Australia, and islands of the Pacific.

Anth **230 World Prehistory** (3 cr). Prehistoric cultures of Old and New Worlds; techniques of excavation; methods of archaeological analysis.

Anth **231 Introduction to Archaeology** (3 cr). Archaeological techniques for interpreting past lifeways from material remains; includes both prehistoric and historical archaeology.

Anth **251 Introduction to Physical Anthropology** (3 cr). Evidence for primate and human evolution; processes of racial diversification; techniques of physical anthropology; human population biology.

Anth **261 Language and Culture** (3 cr). Language as an aspect of culture; the relation of habitual thought and behavior to language.

Anth **299** (s) **Directed Study** (cr arr). Prereq: perm.

Anth **301 Introduction to Diversity and Stratification** (3 cr). See Soc 301.

Anth **C323 Introduction to Museology** (3 cr). Theory and practice of science, history, and art museums. One 1-day and two 1/2-day field trips.

Anth **327 Belief Systems** (3 cr). Same as RelS 327. Method and theory of comparative anthropological study of religion.

Anth **329 North American Indians** (3 cr) (C). Origins, physical types, languages, and cultures of North American Indians.

Anth **400** (s) **Seminar** (cr arr). Prereq: perm.

Anth **403** (s) **Workshop** (cr arr). Prereq: perm.

Anth **404** (s) **Special Topics** (cr arr). Prereq: perm.

Anth **409 Anthropological Field Methods** (1-8 cr, max 8). Field training in archaeology and/or social anthropology.

Anth **J410/J510 Research Methods in Anthropology** (3 cr). Designing, conducting, and reporting research in anthropology. Prereq: Stat 251.

Anth **ID&WS-J411/ID&WS-J511 Human Evolution** (3 cr). WSU Anth 465/565. Human origins in light of the fossil record and evolutionary theory. Additional projects/assignments reqd for grad cr. Prereq: Anth 100 or perm.

Anth **ID&WS-J412/ID&WS-J512 Human Races** (3 cr). WSU Anth 463/563. Human population biology, dynamics of evolution, human ecology, and their relationship to problem of human racial variation. Additional projects/assignments reqd for grad cr. Prereq: Anth 100 or perm.

Anth **C419 Museum Administration** (3 cr). Administration of the total museum program. Prereq: Anth C323.

Anth **420 Anthropological History and Theory** (3 cr, max 9). Historical development of anthropology along with theoretical debates as presented in the anthropological literature. Additional projects/assignments reqd for grad cr. Prereq: upper-division standing.

Anth **421 The World of Polly Bemis** (1 cr). The life of Idaho's most famous Chinese woman, Polly Bemis, including a visit to her restored home on the Salmon River, her grave, and other sites associated with her life and times. Additional fee for off-campus class. One 3-day field trip, including lectures.

Anth **ID-J422/ID-J522 Plateau Indians** (3 cr). WSU Anth 428/528. An overview of historic and contemporary Indian cultures of the Plateau; oral traditions, ceremonial life, social organization, and subsistence activities; history of contact with Euro-American society. Two 1 to 2-day field trips reqd. Additional projects/assignments reqd for grad cr.

Anth **423 Chinese Mining on the Lower Salmon River** (1 cr). Exploration by river of Chinese miners' rock dwellings, hydraulic workings, man-made reservoirs, and Chinese artifacts on otherwise-inaccessible portions of the Lower Salmon River. Additional fee for off-campus class. One 3-day field, including lectures and cultural activities.

Anth **426 Anthropology of China** (3 cr). Overview of physical anthropology, archaeology, and linguistics of China with special emphasis on social anthropology of both pre- and post-liberation China.

Anth **427 Racial and Ethnic Relations** (3 cr) (Anth 322). See Soc 427.

Anth **J428/J528 Social and Political Organization** (3 cr). Bases of social and political organization; kin based units; non-kin units; political units through primitive states. Additional projects/assignments reqd for grad cr. Prereq: upper-div standing.

Anth **J430/J530 Introduction to Archaeological Method and Theory** (3 cr). Archaeological theory in anthropological perspective; current trends in method and theory of American archaeology. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 or perm.

Anth **J431/ID-J531 Historical Archaeology** (3 cr). WSU Anth 545. Investigation of the techniques of historical archaeology as well as an introduction to historic material culture and the theories that inform historical archaeology research. Additional projects/assignments reqd for grad cr. Three 1-day field trips. Prereq: Anth 100.

Anth **J432/J532 Historical Artifact Analysis** (3 cr). An overview and detailed study of the major classes of material culture commonly recovered on historical sites. Course emphasizes the identification of historical materials and introduction of a variety of analytical tools used in historical archaeology. Prereq: Anth 230 or 431 or perm.

Anth **J436/J536 North American Prehistory** (3 cr). Theories, methods, and findings of prehistoric North American archaeology. Additional projects/assignments reqd for grad cr. Prereq: Anth 231.

Anth **J438/J538 Archaeological Conservation** (3 cr). Methods of material and data recovery from archaeological contexts; review of chemical and physical characteristics of archaeological materials; techniques appropriate for preservation of materials and information during field work and laboratory analysis. Additional projects/assignments reqd for grad cr. Prereq: Anth 231.

Anth **J439/J539 Spatial Analysis in Archaeology** (3 cr). Principles and technologies for intra and inter site analyses; use of cumulative regional databases; spatial autocorrellation; introduction to the use of remote sensing; geophysical sampling; geographical information systems, and photogrammetry in archaeology. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 and Stat 251.

Anth **441 Introduction to the Study of Language** (3 cr). See Engl 441.

Anth **J443/J543 Plateau Prehistory** (3 cr). Prehistoric cultures, chronologies, and interrelationships within the interior Northwest. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 or perm.

Anth **J449/J549 Lithic Technology** (3 cr). Manufacture and analysis of stone implements, theory of rock fracture, nonhuman productions of pseudo-artifacts. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 or perm.

Anth **WS-J450/WS-J550 Descriptive Linguistics** (3 cr). WSU Anth 450/550.

Anth **ID&WS-J451/ID&WS-J551 Forensic Anthropology** (3 cr). WSU Anth 466/566. Observations and measurements of the human skeleton; variations based on age, sex, and race, and pathologies; identification of human skeletal material and other mammals. Additional projects/assignments reqd for grad cr. Three lec/lab sessions a wk. Prereq: Anth 251.

Anth **J462/J562 Human Issues in International Development** (3 cr). Interdisciplinary analysis of complex interaction between tradition and modernity in Third World society, and its attendant human predicament. Additional projects/assignments reqd for grad cr. (Alt/yrs)

Anth **496** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Anth **497** (s) **Practicum** (cr arr).

Anth **498** (s) **Internship** (cr arr). Prereq: perm.

Anth **499** (s) **Directed Study** (cr arr). Prereq: perm.

Anth **500 Master's Research and Thesis** (cr arr).

Anth **501** (s) **Seminar** (cr arr). Prereq: perm.

Anth **502** (s) **Directed Study** (cr arr). Prereq: perm.

Anth **503** (s) **Workshop** (cr arr). Prereq: perm.

Anth **504** (s) **Special Topics** (cr arr). Prereq: perm.

Anth **509 Anthropological Field Methods** (1-8 cr, max 8). Individual field work in approved areas. Prereq: perm.

Anth **510 Research Methods in Anthropology** (3 cr). See Anth J410/J510.

Anth **ID&WS511 Human Evolution** (3 cr). See Anth J411/J511.

Anth **ID&WS512 Human Races** (3 cr). See Anth J412/J512.

Anth **521 Contemporary Issues in Anthropological Theory** (3 cr). In-depth exploration of contemporary theoretical issues within anthropology. Prereq: Anth 420 or equiv, or perm.

Anth **ID522 Plateau Indians** (3 cr). See Anth J422/J522.

Anth **528 Social and Political Organization** (3 cr). See Anth J428/J528.

Anth **530 Introduction to Archaeological Method and Theory** (3 cr). See Anth J430/J530.

Anth **ID531 Historical Archaeology** (3 cr). See Anth J431/J531.

Anth **532 Historical Artifact Analysis** (3 cr). See Anth J432/J532.

Anth **WS535 Cultural Resource Management** (3 cr). WSU Anth 535.

Anth **536 North American Prehistory** (3 cr). See Anth J436/J536.

Anth **538 Archaeological Conservation** (3 cr). See Anth J438/J538.

Anth **539 Spatial Analysis in Archaeology** (3 cr). See Anth J439/J539.

Anth **543 Plateau Prehistory** (3 cr). See Anth J443/J543.

Anth **549 Lithic Technology** (3 cr). See Anth J449/J549.

Anth **WS550 Descriptive Linguistics** (3 cr). See Anth WS-J450/WS-J550.

Anth **ID&WS551 Forensic Anthropology** (3 cr). See Anth J451/J551.

Anth **562 Human Issues in International Development** (3 cr). See Anth J462/J562.

Anth **WS573 Zooarchaeology** (4 cr). WSU Anth 573.

Anth **597** (s) **Practicum** (cr arr). Prereq: perm.

Anth **598** (s) **Internship** (cr arr). Prereq: perm.

Anth **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Architecture

**Robert M. Baron, Chair, Dept. of Architecture (207 Art and Arch. South 83844-2451; phone 208/885-6781; e-mail arch@uidaho.edu).**

Note: On registering for a studio course offered in this department, the student agrees that the department may retain work completed by the student. The department will make retained work available to the student for photographing.

Arch **151 Introduction to the Environmental Design Disciplines** (2 cr). Introduction to the role of architecture and interior architecture in the creation of the built environment using an integrated approach; the power of design to nourish the human spirit, support functional needs, and contribute to sustainability of the environment. Attendance required at evening lectures by guest speakers and four special seminar sessions during the semester.

Arch **156 Graphic Communication** (2 cr). Intro to the process of graphic communication; studio projects to explore graphics through projects, lec, and readings. Two 2-hr studios a wk and assigned work.

Arch **200** (s) **Seminar** (cr arr). Prereq: perm.

Arch **203** (s) **Workshop** (cr arr). Prereq: perm.

Arch **204** (s) **Special Topics** (cr arr). Prereq: perm.

Arch **251 Principles of Architecture** (2 cr). Slide lec course introducing architecture and interior architecture; methods of critical analysis; history of modern movement to contemporary design.

Arch **255 Advanced Architectural Graphics** (3 cr). Two- and three-dimensional drawing applying various delineation techniques; preliminary presentation techniques and use of color in graphics. Two 2-hr studios a wk and assigned work. Prereq: Arch 156 or perm.

Arch **256 Basic Architectural Design** (3 cr). Same as ID 256. Intro to design process, space and space relationships, character of design, and form; development of sketch presentation techniques. Two 3-hr studios a wk and assigned work.

Arch **266 Materials and Methods** (3 cr). Materials characteristics from manufacture to construction; production information and resource literature investigation.

Arch **284 Computer Applications in Architecture I** (3 cr). Introduction to the application of current computer technologies in architecture and interior design; emphasis on the fundamentals of integrating multi-dimensional modeling, computer-aided design, and visualization methods into the design process.

Arch **299** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **353-354 Architectural Design I** (5 cr). Expansion of student vocabulary of architectural forms and their means of generation; a broad scope and nonrestrictive (though directed) class covering aspects of form generation from human to climatic conservations, influences of history, research, and materials of construction related to architectural design; encouragement of student experimentation and creativity. Three 3-hr studios a wk and assigned work; field trips will be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 256 and 266.

Arch **365-366 Building Technology I** (3 cr). Arch 365: basic structural design including elementary statics and principles and technology of wood structural design. Arch 366: principles and technology of structural reinforced concrete building design problems by integrating solutions with Architectural Design studio. Prereq: Phys 111, Math 143, and Arch 365 for 366, or perm.

Arch **374 Computer Applications in Architecture II** (2 cr). Exploration of computer technologies used to investigate, verify, and present design decisions; emphasis directed toward topics relevant to the representation of architectural forms and design knowledge. Prereq: Arch 284 or perm.

Arch **385 History of Architecture I: Pre-Modern** (3 cr). Development of western tradition in architecture and urbanism, beginning with first traces of prehistoric building and settlements in northern Europe and Near East and ending with culmination of Baroque development in late 17th century.

Arch **386 History of Architecture II: Modern** (3 cr). Modern movement in architecture and urbanism from late 18th century in France and Britain; cultural, technological, and territorial issues and conditions that led to development of modern architecture in the 20th century.

Arch **400** (s) **Seminar** (cr arr). Prereq: perm.

Arch **401 Senior Design Seminar** (2 cr). Specialized research and program writing in preparation for Arch 456.

Arch **403** (s) **Workshop** (cr arr). Prereq: perm.

Arch **404** (s) **Special Topics** (cr arr). Prereq: perm.

Arch **406** (s) **Study Abroad** (cr arr). Prereq: perm.

Arch **ID412 Environment and Aging** (3 cr). WSU Aging 412. Exploration of the relationship between the processes of aging and the physical environment within an environment and behavior perspective.

Arch **453-454 Architectural Design II** (5 cr). Study directed at specifics of building design synthesizing related course work into a comprehensive problem solution from multiple-building planning to working drawings on a single building. Three 3-hr studios a wk and assigned work; field trips will be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 353-354.

Arch **455-456 Architectural Design III** (5 cr). Expansion to the urban scale of the student's design awareness and ability; to acquaint the student with the multiplicity of considerations involved as project scope increases beyond a single site; to encourage creative and broad-scope thought and action on the future configuration of our cities. In Arch 456, the student undertakes a self-directed architectural design study with faculty consultation. Three 3-hr studios a wk and assigned work; field trips will be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 453-454. Prereq for Arch 456: Arch 401.

Arch **463-464 Environmental Control Systems** (4 cr). Principles and design of solar and mechanical heating and cooling systems, natural and artificial lighting, water and waste systems, and acoustics. Three 1-hr lec and one 2-hr lab a wk.

Arch **465-466 Building Technology II** (3 cr). Arch 465: structural design with steel in buildings; principles and technology of steel design applied to practical building problems by integrating solutions with Architectural Design studio. Arch 466: structural design of buildings with seismic analysis; principles and technology of masonry design. Prereq: ForP 365, Arch 366, or perm.

Arch **J468/J568 Technical Integration of Buildings** (2 cr). Integration of structural, environmental, and spatial systems in buildings through case study methodology. Additional projects/assignments reqd for grad cr. Prereq: Arch 463, 464, 465, and 466, or perm.

Arch **470 Natural Lighting** (2 cr). Methods for design of daylighting systems for building.

Arch **471 Building Vital Signs** (2 cr). Methods for assessing performance of actual and planned buildings.

Arch **475-476 Professional Practice I-II** (3 cr). The architect's duties and responsibilities in practice (construction documents and contracts), project supervision, office administration, and comprehensive services; specification writing, unit costs, and building estimation.

Arch **482 Introduction to Historic Preservation: Theories and Issues** (2 cr). Same as ID 482. Cross-disciplinary examination of historic preservation issues, both past and present; case study exploration of design and planning strategies for preservation and adaptive use of historic buildings and community context. Field trips required.

Arch **483 Urban Theory and Issues** (3 cr). History and theory of city planning and problems associated with urban growth.

Arch **484 Architectural Theory** (2 cr). Seminar considering architectural theory and critical thought through history with emphasis on modern era; examines relation between architectural theory and architectural works. Prereq: Arch 385, 386, fourth year standing.

Arch **486 American Architecture** (2 cr). Selected areas of critical interest in development of American architecture; may include historical styles, key American architects, urban and public issues, and particular building types.

Arch WS490 Seminar in Architectural Design (1-4 cr, max 4). WSU Arch 490.

Arch **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Arch **499** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **500 Master's Research and Thesis** (cr arr).

Arch **501** (s) **Seminar** (cr arr). Prereq: perm.

Arch **502** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **503** (s) **Workshop** (cr arr). Prereq: perm.

Arch **504** (s) **Special Topics** (cr arr). Prereq: perm.

Arch **505 Architectural Research Methods** (3 cr). Quantitative and qualitative research designs, procedures, instruments, and techniques for use in architectural research, programming and design. Prereq: grad standing in M.Arch./M.A. prog.

Arch **506** (s) **Study Abroad** (cr arr). Prereq: perm.

Arch **510 Graduate Seminar** (2 cr). Specialized research and program writing in preparation for Arch 556.

Arch **555 Graduate Architectural Design** (5 cr). Complex architectural design and/or urban and community planning; opportunities to explore in depth principles presented in other planning, technology, and theory courses. Three 3-hr studios a wk and assigned work; field trips reqd at student expense; some class jury sessions will meet outside of scheduled hours.

Arch **556 Graduate Project** (5 cr). Faculty directed comprehensive architectural design project. Three 3-hr studios a wk and assigned work; field trips may be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 510 and 555.

Arch **568 Technical Integration of Buildings** (2 cr). See Arch J468/J568.

Arch **597** (s) **Practicum** (cr arr). Prereq: perm.

Arch **598** (s) **Internship** (3 cr, max 6). Work in an architectural office under the supervision of a licensed architect. Prereq: perm.

Arch **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Art

**Sally G. Machlis, Chair, Dept. of Art (112 Art and Arch. 83844-2471; phone 208/885-6851).**

Note: On registering for a studio course offered in this department, the student agrees that the department may retain work completed by the student.

**Vertically-related courses in this subject field are:** Art 111-112-211-311, Art 221-222-321-322, Art 231-331, Art 241-341, Art 261-361, Art 271-272-371.

Art **100 Visual Art** (3 cr). *May be used as core credit in J-3-d.* Introductory historical overview of important visual arts to promote an understanding and appreciation of artistic output with primary emphasis on painting, sculpture, and architecture. Two lec and one 1-1/2-hr quiz/recitation a wk.

Art **110 Visual Communication** (2 cr). The principles and elements of two and three-dimensional design with application and analysis of these elements in our visual world.

Art **111 Drawing I** (2 cr). Freehand drawing; emphasis on expressive use of materials. Two 2-hour studios a wk. Prereq or coreq: Art 110.

Art **112 Drawing II** (3 cr). Freehand drawing; emphasis on expressive use of materials. Two 3-hour studios a wk. Prereq: Art 111.

Art **121 Design Process I** (2 cr). Intro to visual communication and design process; studio problems to familiarize students with basic design process, elements of design and individual design criteria as related to traditional and experimental concepts of visual communication; studio problems explore basic design through the two- and three-dimensional production, experiences, readings, and written analysis. Two 2-hr studios a wk and assigned work; attendance at outside events (lecs, symposiums, Prichard and Univ Gallery openings). Prereq or coreq: Art 110.

Art **122 Design Process II** (3 cr). Intro to visual communication and design process; studio problems to familiarize students with basic design process, elements of design and individual design criteria as related to traditional and experimental concepts of visual communication; studio problems explore basic design through the two- and three-dimensional production, experiences, readings, and written analysis. Two 3-hr studios a wk and assigned work; attendance at outside events (lecs, symposiums, Prichard and Univ Gallery openings). Prereq or coreq: Art 110.

Art **200** (s) **Seminar** (cr arr). Prereq: perm.

Art **H201 Art Studio** (3 cr). Emphasis on free hand drawing using a wide range of drawing and rendering tech; intro to artistic media and concepts; guest lec and slide presentations by members of art faculty and art grad program; in-class discussion of area gallery shows and college guest lec series. Two 3-hr studios a wk and assigned work. Prereq: perm of director of University Honors Program.

Art **203** (s) **Workshop** (cr arr). Prereq: perm.

Art **204** (s) **Special Topics** (cr arr). Prereq: perm.

Art **207 Survey of Western Art: Ancient to Medieval** (3 cr). Introduction to the arts and architecture of Mesopotamia, Egypt, the Aegean, Greece, Rome, and Medieval Europe to the year 1400; periods evaluated according to comparative stylistics, with additional emphasis on causality of change and innovation; emphasis on architecture, sculpture, and forms of painting. May have evening exams.

Art **208 Survey of Western Art: Renaissance to Modern** (3 cr). Introduction to the arts of the Italian Renaissance, the Renaissance in the North, the Baroque Period, Neo-Classicism and Romanticism, 19th century experiments, and modern to contemporary periods; primary emphasis on two-dimensional arts, with some focus on architecture and sculpture; periods evaluated according to comparative stylistics, with additional emphasis on causality of change and innovation. May have evening exams.

Art **211 Drawing III** (3 cr). Life drawing, work with various media to develop an understanding of the human figure. Two 3-hr studios a wk and assigned work. Prereq: Art 111-112 or perm.

Art **ID214 Textile Design I** (3 cr). Art 214: Intro to basic technical and aesthetic concepts in textile arts and design, including textile structure and surface manipulation. Two 3-hr studios a wk and assigned outside work; field trips and guest lectures may be required.

Art **221-222 Graphic Design I-II** (3 cr). Art 221: Creative problem solving with emphasis on 2-D solutions to conceptual problems; translation of concept into form using word, image, and layout; intro to history of graphic design and typography. Art 222: Continuation of translation of concept into form with emphasis on typography, letterforms, and typographic syntax, type specification, and preparation of art for print media. Prereq for Art 221: Art 111-112, 121-122 or perm. Prereq for Art 222: Art 221 or perm.

Art **225 Communication Graphics** (2 cr). Intro to graphic communication using elementary techniques emphasizing typography and advertising layout. Two 3-hr studios a wk and assignments. Not for graphics majors. Class limited to 35.

Art **231 Painting I** (3 cr). Intro to basic fundamentals of painting; investigating color and techniques. Two 3-hr studios a wk and assigned work. Prereq: Art 111 or perm.

Art **241 Sculpture I** (3 cr). Introductory studio environment with emphasis on basic design principles and techniques, tool safety, material exploration, and the development of unique personal expressions in three dimensions. Two 3-hr studios a wk and assigned work.

Art **251 Printmaking I** (3 cr). Intro to basic printmaking techniques, relief, intaglio, and monotype; emphasis on sensitivity to materials and individual development.

Art **261 Ceramics I** (3 cr). Intro to clay-forming techniques, wheel-thrown and hand-built forming methods, ceramic design concepts, development and articulation of individual design criteria, glaze experimentation; fundamental types of ceramic ware; kiln and studio procedures. Two 3-hr studios a wk and assigned work.

Art **271-272 Interface Design I-II** (3 cr). Art 271: Intro to technical and aesthetic concepts of interface design, including interface design for the Web, preparation of basic assets (graphics, video, and sound) for Internet delivery. Art 272: Intro to basic interactive multi-media programs, intermediate asset preparation, and delivery systems (Internet, CD, kiosk, etc.). Six hrs of lab a wk and assigned work. Prereq for Art 271: Art 121, 122, or perm. Prereq for Art 272: Art 271.

Art **281 Watercolor I** (3 cr). Intro to techniques of watercolor painting by individual instruction and group criticism. Two 3-hr studios a wk and assigned work. Prereq: Art 111 or perm.

Art **299** (s) **Directed Study** (cr arr). Prereq: perm.

Art **301 History of Art: 19th Century** (3 cr).

Art **302 History of Art: 20th Century** (3 cr).

Art **311 Drawing IV** (3 cr, max 6). Advanced drawing with emphasis placed on individual development and exploration of conceptual approaches to drawing. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 211, or perm.

Art **312 Drawing V** (3 cr, max 6). Advanced drawing with emphasis placed on individual development and exploration of conceptual approaches to drawing. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 211 and 311 or perm.

Art **314 Textile Design II** (3 cr, max 6). Development of conceptual and technical abilities in the textile arts with emphasis on individual expression and designing for industry. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 214 or perm.

Art **315 Textile Design III** (3 cr, max 6). Development of conceptual and technical abilities in the textile arts with emphasis on individual expression and designing for industry. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 214 or perm.

Art **321 Graphic Design III** (3 cr, max 6). Advanced design problems with emphasis on individual development and exploration of contemporary design issues. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 221 and 222, or perm.

Art **322 Graphic Design IV** (3 cr, max 6). Graphic problem solving in the community environment; advanced production techniques for the graphic designer. Two 3-hr studios a wk and assigned work. Prereq: Art 321 or perm.

Art **331 Painting II** (3 cr, max 6). Intermediate painting in oil or acrylic; emphasis on color assignments and aesthetic problems. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 231 or perm.

Art **332 Painting III** (3 cr, max 6). Advanced painting emphasizing individual conceptual approaches. Two 3-hr studios a wk and assigned work. Prereq: Art 331 or perm.

Art **341 Sculpture II** (3 cr, max 6). Intermediate level studio environment with emphasis on promoting tool safety, material exploration, creative autonomy, portfolio development, and comprehension of historical and contemporary issues relevant to studio projects and sculpture discourse. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 241 or perm.

Art **342 Sculpture III** (3 cr, max 6). Self directed studio environment with emphasis on refining individual direction, advanced application of materials and techniques, portfolio presentation, and comprehension of practical and theoretical concerns for the professional sculptor. Two 3-hr studios a wk and assigned work. Prereq: Art 341 or perm.

Art **351 Printmaking II** (3 cr, max 6). Advanced printmaking; further exploration of printmaking methods and materials; emphasis on individual development in conceptual and technical abilities. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 251 or perm.

Art **352 Printmaking III** (3 cr, max 6). Advanced printmaking; further exploration of printmaking methods and materials; emphasis on individual development in conceptual and technical abilities. Two 3-hr studios a wk and assigned work. Prereq: Art 351 or perm.

Art **361 Ceramics II** (3 cr, max 6). Development and articulation of individual design criteria in ceramics; development of personal conceptual and technical skills in ceramics. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 261 or perm.

Art **362 Ceramics III** (3 cr, max 6). Development and articulation of individual design criteria in ceramics; development of personal conceptual and technical skills in ceramics. Two 3-hr studios a wk and assigned work. Prereq: Art 361 or perm.

Art **371 Interface Design III** (3 cr, max 6). Intermediate multi-media and interface design for computer applications with emphasis on individual development and exploration of contemporary technical and aesthetic design issues. Six hrs of lab a wk and assigned work. Prereq: art core and Art 271-272 or perm.

Art **372 Interface Design IV** (3 cr, max 6). Advanced multi-media and interface design for computer applications with emphasis on team design projects, Web site development and management, and development for stand alone delivery (i.e., CDs, kiosks, etc.). Six hrs of lab a wk and assigned work. Prereq: Art 371 or perm.

Art **391 Collage** (3 cr, max 6). Understanding form in its context by assembling unrelated found objects; emphasis on pictorial integration strategies; tutorial-based studio, production outside of class. Outside lec and special events may be assigned. Prereq: art core and 9 cr of 200-level art studios or perm.

Art **392 Mixed Media** (3 cr, max 6). Understanding synthesis of different media in context to a work of art by using two or more techniques; tutorial-based studio, production to occur outside of class. Outside lec and special events may be assigned. Prereq: art core, 9 cr of 200-level art studios, and 6 cr of 300-level art studios or perm.

Art **400** (s) **Art Seminar** (1-3 cr, max 6). Prereq: perm.

Art **403** (s) **Workshop** (cr arr). Prereq: perm.

Art **404** (s) **Special Topics** (cr arr). Prereq: perm.

Art **408 Readings in Art** (1-3 cr, max 6). Directed readings in various areas of art including, but not limited to, art history, art theory, and art criticism. Prereq: Art 100, 301-302 or equiv, or perm of instructor before registration.

Art **410 Professional Practices** (2 cr). Professional issues for studio artists and designers including obligations, duties, and responsibilities in practice, self-promotion, and career planning. Includes analysis of gallery operations. Prereq: adv standing or perm.

Art **488 Faculty Directed Internship** (1-3 cr, max 6). Open only to art majors. Art faculty directed work on a professional project. Prereq: successful completion of one 300-level studio sequence (6 cr), and advisor and directing faculty approval.

Art **490 Art Studio** (6 cr, max 12). Open only to BFA studio art majors. Intensive tutorial studio closely monitored by all the faculty, culminating in development of a portfolio and a professional exhibition. Outside lec and special events may be assigned. Twelve formal hrs of studio a wk plus outside work to equal 18 hrs of involvement a wk; field trips and guest lectures may be required. Prereq: senior standing and completion of 15 cr in 300-level art courses with a minimum grade of C and a minimum GPA of 2.5.

Art **495 BFA Senior Thesis** (2 cr, max 4). Open only to B.F.A. studio art majors. BFA majors take 2 semesters. Preparation of thesis, portfolio, and senior exhibition. Prereq: senior standing and completion of 15 cr in 300-level art courses with a minimum grade of C and a minimum GPA of 2.5.

Art **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Art **498** (s) **Internship** (1-12 cr, max 12). Graded P/F. Open to art majors only; no more than 6 cr may be counted toward art degree requirements. Work with professional artists. Prereq: One 300-level studio sequence (6 cr) and perm of dept chair.

Art **499** (s) **Directed Study** (1-3 cr, max 9). Individual study areas selected by the student and approved by the faculty; it is the student's responsibility to select a study area and prepare a semester study program; the student contacts one of the art faculty who agrees to direct the study; it is the student's responsibility to initiate the study program and to maintain regular contact with the faculty member who has agreed to direct the study. Prereq: completion of one 300-level studio sequence (6 cr) and perm.

Art **500 Master's Research and Thesis** (cr arr).

Art **505** (s) **Special Topics** (cr arr). Prereq: perm.

Art **507** (s) **Art Seminar** (3 cr, max 6). Open only to art majors. Seminar in professional art concerns: guest artist programs, University Gallery activities, including field trips. One 2-hr seminar a wk and assigned work.

Art **508** (s) **Readings in Art** (3 cr, max 6). Readings in specific subject or topic areas: art theory, art history; art criticism, and other art subject areas. One hr a wk conference/discussion/seminar and assigned work.

Art **510 Gallery** (1-3 cr, max 6). Descriptive analysis of gallery functions; hands-on student participation installing, packaging art works for shipping, lighting, promotions, advertising and marketing; speakers series of professionals in the field or allied areas; e.g., gallery directors, artists as presenters/installers, professional art movers. Prereq: perm of UI Gallery director.

Art **515** (s) **Art Faculty Studio** (3-6 cr, max 12) (Art 525). Open only to art majors. Studio research taken from the entire art faculty; students are required to arrange at least two studio critiques/faculty each semester.

Art **516** (s) **MFA Art Studio** (3-6 cr, max 9) (Art 526). Open only to MFA majors. Studio research taken from two or more art faculty members. Prereq: Art 525 (6 cr) and perm.

Art **520** (s) **Studio Workshops** (1-3 cr, max 6). Open only to art majors. Specialized studio experience; offered by art faculty members, faculty groups, and/or guest artists.

Art **521** (s) **MFA/MAT Individual Critique** (3 cr, max 9). Open only to MFA majors. Studio research taken from individual art faculty members; individual instruction and critiques. One hr a wk critique session and 8 hrs a wk of individual studio research.

Art **590** (s) **MFA Thesis Exhibition** (4-8 cr, max 20). Open only to MFA majors. Studio research directly related to preparation of MFA "Exhibition and Statement." Prereq: Art 525 (6 cr).

Art **597** (s) **Practicum** (3 cr, max 6). Open only to art majors. Classroom assistance in teaching and preparation of course materials; conducted under faculty supervision. Normally requires 4-6 hrs a wk in class and assigned work. Prereq: perm of individual faculty and art grad coordinator.

Art **598** (s) **Internship** (1-6 cr, max 6). Open only to art majors. Work with professional artists. Prereq: perm of major professor and dept chair.

# Biological and Agricultural Engineering

**Charles L. Peterson, Interim Head, Department of Biological and Agricultural Engineering (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu).**

NOTE: All 300-, 400-, and 500-level biological and agricultural engineering courses require a working knowledge of computers including the use of mainframe and microcomputers, structured programming, electronic spreadsheets, and word processing.

BAE **142 Engineering for Living Systems** (2 cr) (AgE/BSyE 142). Introduction to engineering principles used to solve agricultural and biological systems problems, including use of computers. One lec and one 3-hr lab a wk; two half-day field trips.

BAE **143 Engineering Problem Solving** (2 cr) (AgE/BSyE 143). Engineering principles used to solve agricultural and biological systems problems, including computer programming; introduction to elements of design.

BAE **242 Engineering Analysis and Design** (2 cr) (AgE/BSyE 242). Methods of analyzing and solving engineering problems and intro to elements of design; use of computers in engineering problem solving. Prereq: BAE 143 or computer science elective in a programming language.

BAE **299** (s) **Directed Study** (cr arr) (AgE 299). Prereq: perm.

BAE **WS304 Perspectives in Biomedical Engineering** (1 cr, max 3) (BSyE WS304). WSU BSysE 339. Current issues and career options in biomedical engineering.

BAE **ID&WS310 Biological Dynamics for System Design** (3 cr) (BSyE ID&WS310). WSU BSysE 310. Modeling and analysis of biological systems including microbial growth, population dynamics, enzyme kinetics, photosynthesis, respiration, and animal energetics and behavior for designing plant, animal, and microbial systems. Two lec and three hours of lab a wk. Prereq: BAE 242, Biol112, Math 310, and Soil 205, 206 or MMBB 250.

BAE **WS341 Environmental Hydrology** (3 cr) (AgE WS341). WSU BSysE 351. Carries no credit after BAE 351.

BAE **ID351 Hydrology** (3 cr) (AgE ID351). WSU BSysE 353. Analysis of precipitation and runoff events; principles of climatology, evaporation, infiltration, and snowmelt. Prereq: one semester of calculus.

BAE **ID&WS352 Soil and Water Engineering** (3 cr) (AgE ID&WS352). WSU BSysE 352. Plant-soil-water relationships, applied hydraulics, soil erosion principles and control, drainage, and legal aspects of water resources. Two lec and one 3-hr lab a wk. Prereq: Engr 335 and BAE 351.

BAE **355 Fundamentals of Hydrologic Engineering** (3 cr) (AgE 355). See CE 325.

BAE **361 Transport Processes in Biological Systems** (3 cr) (BsyE 361). Heat and mass transfer processes applied to analysis of biological systems and related equipment and processes. Prereq: Engr 320, Math 310.

BAE **ID&WS372 Agricultural Power and Machines** (3 cr) (AgE ID&WS372). WSU BSysE 362. Performance, operation, and testing of agricultural power units and machinery; functional requirements, force analysis, power transmission, safety, and economics. Two lec and three hrs of lab a wk; one 1-day field trip.

BAE **WS386 Mechanics of Biomaterials** (4 cr) (BSyE WS386). WSU BSysE 320. Composition of biological materials, mechanical and thermal properties, chemical and biological changes. Two lec and one 3-hr lab a wk. Prereq: Engr 335 and 350.

BAE **398** (s) **Engineering Cooperative Internship** (cr arr) (AgE/BSyE 398). Supervised internship in professional engineering settings, integrating academic study with work experience; details of the co-op to be arranged with supervising professor before the start of the co-op; requires written report. Graded P/F. Cannot be used for technical elective. Prereq: perm.

BAE **404** (s) **Special Topics** (cr arr) (AgE/BSyE 404). Prereq: perm.

BAE **ID-J432/ID-J532 Bioreactor Theory and Design for Waste Treatment** (3 cr) (BSyE ID-J432/ID-J532). BAE 532 same as EnvE 544. Theory of biological waste treatment as applied to wastewaters, including reaction kinetics, reactor theory and design, reaction stoichiometry, microbiology, gas transfer theory, suspended growth and attached growth process theory and design, and separation of biological solids. Graduate credit requires additional design project. One field trip. Prereq: Chem 112, Math 310, and Biol 112 or MMBB 250.

BAE **J433/J533 Bioremediation** (3 cr) (BSyE J433/J533). BAE 533 same as EnvE 533. Theory and practice of bioremediation as applied to toxic and hazardous wastes, including reaction kinetics, reaction stoichiometry, microbiology, and design of ex- and in-situ processes. Graduate credit requires additional design project. One-two field trips. Prereq: Math 170; Biol 112 or perm.

BAE **ID&WS-J441/ID&WS-J541 Instrumentation and Measurements** (3 cr) (AgE ID&WS-J441/ID&WS-J541 and BSyE 441). WSU BSysE 541. Sensing elements, signal conditioning, data output and control. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk. Prereq: BAE 462 or perm.

BAE **ID449 Design of Agricultural Structures** (3 cr) (AgE ID449). WSU BSysE 472. Design of timber, steel, and reinforced concrete members and connections for agricultural structures. Two lec and one 3-hr lab a wk. Prereq: Engr 350.

BAE **ID451 Engineering Hydrology** (3 cr) (AgE ID451). Same as CE 421. WSU BSysE 451. Hydrologic cycle as applied to engineering projects; hydrograph routing; design hydrographs; intro to hydrologic simulation. Prereq: BAE 351 and Engr 335.

BAE **ID&WS-J452/ID&WS-J552 Environmental Water Quality** (3 cr) (BSyE ID&WS-J452/ID&WS-J552). WSU BSysE 452. BAE 552 same as EnvE 552. Engineering design to monitor, evaluate, and minimize non-point pollution from agriculture, environmentally acceptable disposal of wastes, bioremediation. Graduate credit requires an additional project and report. Two lec and one 3-hr lab a wk. Prereq: BAE 351, Soil 205 or MMBB 250, Chem 112.

BAE **WS-J456/WS-J556 Natural Systems for Wastewater Treatment** (3 cr) (BSyE WS-J455/WS-J555). WSU BSysE 455/555.

BAE **WS457 Design for Watershed Management** (3 cr) (AgE/BSyE WS457). WSU BSysE 457. Selection, application, and evaluation of models and modeling techniques to solve watershed level problems. Topics include watershed assessment, hydrologic and pollutant transport processes, solution methods, GIS techniques related to modeling, scaling issues, sensitivity analysis, evaluation of management practices, commonly used modes of hydrology. Prereq: BAE 355 or CE 325.

BAE **458 Open Channel Hydraulics** (3 cr) (AgE 458). Same as CE 428. Hydraulics of uniform and varied flow in open channels with fixed and movable beds. Prereq: BAE 352 or CE 322.

BAE **ID&WS-J459/J559 Irrigation System Design** (3 cr) (AgE ID&WS-J456/J556). WSU BSysE 453. Crop water requirements, irrigation scheduling and water management, selection and design of irrigation systems, pump selection. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk; one 1-day field trip. Prereq: BAE 352.

BAE **460 Engineering Plant and Animal Environments** (2 cr) (BSyE 460). In-depth analysis of biological interactions used for designing plant and animal facilities and systems; plant and animal welfare, air quality, space, production parameters, water usage, radiant energy, and thermal properties; analytical study of animal and plant energetic relations to the environment; design of greenhouse systems, animal housing systems, ventilation systems, and environmental control systems from basic physical and biological requirements to mathematical modeling of system responses. Prereq: Math 310, Engr 320, Biol 112.

BAE **ID&WS461 Agricultural Processing and Environment** (3 cr) (AgE ID&WS461). WSU BSysE 461. Carries 2 credits after BAE 361 or ME 345. Analysis and design of processing and environmental systems for the handling, processing, and storage of agricultural and biological materials. Two lec and one 3-hr lab a wk. Prereq: Engr 320 and 335.

BAE **ID&WS462 Electric Power and Controls** (3 cr) (AgE ID&WS462 and BSyE 462). WSU BSysE 380. Design, selection, and use of electrical equipment and electric power systems for application to biological systems; design and use of electrical, electronic, and other feedback control systems for use with biological systems. Two lec and one 3-hr lab a wk. Prereq: Engr 240. Coreq: Math 310.

BAE **ID-J474/ID-J574 Fluid Power and Control Systems** (3 cr) (AgE ID-J474/ID-J574). WSU BSysE 474/574. Circuit components; circuit design and testing; sequential and feedback control applications. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk. Prereq for BAE 574: perm.

BAE **478 Engineering Design I** (1 cr) (AgE/BSyE 478). Intro to design process, CAD/CAM facility, product liability, and project scheduling; formulation of a design problem. Prereq: Sr standing or perm.

BAE **479 Engineering Design II** (2 cr) (AgE/BSyE 479). Individual or team design of an agricultural related problem; incl synthesis, analysis, construction, and testing; final report reqd. Two 3-hr labs a wk. Prereq: BAE 478.

BAE **WS-J482/WS-J582 Food Process Engineering Design** (3 cr) (BSyE WS-J482/WS-J582). WSU BSysE 482/582. Same as FST 482/582.

BAE **WS483 Food Separation Processes Design** (3 cr) (BSyE WS483). WSU BSysE 483.

BAE **WS-J486/WS-J586 Food Rheology** (3 cr) (BSyE WS-J486/WS-J586). WSU BSysE 486/586.

BAE **WS-J487/WS-J587 Food Plant Design** (3 cr) (BSyE WS-J487/WS-J587). WSU BSysE 487/587.

BAE **WS-J488/WS-J588 Food Powders** (3 cr) (BSyE WS-J488/WS-J588). WSU BSysE 488/588.

BAE **491 Senior Seminar** (1 cr) (AgE/BsyE 491). Professional aspects of the field, employment opportunities and preparation of occupational inventories. Graded P/F. Prereq: senior standing.

BAE **WS-J496/WS-J596 Conservation Engineering** (3 cr) (AgE WS-J496/Ws-J596). WSU BSysE 496/596.

BAE **499** (s) **Directed Study** (cr arr) (AgE/BSyE 499). Prereq: perm.

BAE **500 Master's Research and Thesis** (cr arr) (AgE/BSyE 500).

BAE **501** (s) **Seminar** (cr arr) (AgE 501). Graded P/F. Prereq: perm.

BAE **502** (s) **Directed Study** (cr arr) (AgE 502). Prereq: perm.

BAE **ID532 Bioreactor Theory and Design for Waste Treatment** (3 cr) (BSyE ID532). See BAE J432/J532.

BAE **533 Bioremediation** (3 cr) (BSyE 533). See BAE J433/J533.

BAE **534 Applied Bioremediation** (3 cr). Same as EnvE 535. Application of theory and design learned in prerequisite BAE 433/533 including conducting treatability studies, transportation and fate modeling in the subsurface, and hydrologic testing. Students required to complete laboratory, numerical modeling, and field-testing modules in addition to a subsurface modeling project. Prereq: BAE 433/533.

BAE **ID&WS541 Instrumentation and Measurements** (3 cr) (AgE ID&WS541). See BAE J441/J541.

BAE **ID551 Advanced Hydrology** (3 cr) (AgE ID551). WSU BSysE 550. Principles of the hydrologic cycle in mountainous areas, including precipitation, snowmelt, and systems simulation.

BAE **ID&WS552 Environmental Water Quality** (3 cr) (BSyE ID&WS552). See BAE J452/J552.

BAE **553 Land Surface Hydrology** (3 cr). Physical transport processes within the hydrologic cycle that govern exchanges of mass (water), heat, energy, and momentum between the land surface and the atmosphere. Includes evapotranspiration modeling. Prereq: Fluid Mechanics, Calculus, and either CE 325 or BAE 355.

BAE **555 Natural Channel Flow** (3 cr) (AgE 555). Same as CE 529. Hydraulics of nonuniform flow in irregular channels, unsteady flow, and flow routing.

BAE **WS556 Natural Systems for Wastewater Treatment** (3 cr) (BSyE WS555). See BAE J456/J556.

BAE **ID558 Fluid Mechanics of Porous Materials** (3 cr) (AgE ID558). WSU BSysE 558. Statics and dynamics of multiflow systems in porous materials; properties of porous materials; steady and unsteady flow.

BAE **559 Irrigation System Design** (3 cr) (AgE 556). See BAE J459/J559.

BAE **WS561 Advanced Agricultural Engineering Topics** (1-4 cr, max 6) (AgE WS561). WSU BSysE 551-552.

BAE **WS566 Constructed Wetlands for Pollution Control** (2 cr) (BSyE WS566). WSU BSysE 566.

BAE **ID574 Fluid Power and Control Systems** (3 cr) (AgE ID574). See BAE J474/J574.

BAE **WS582 Food Process Engineering Design** (3 cr) (BSyE WS582). See BAE J482/J582.

BAE **WS586 Food Rheology** (3 cr) (BSyE WS586). See BAE J486/J586.

BAE **WS587 Food Plant Design** (3 cr) (BSyE WS587). See BAE J487/J587.

BAE **WS588 Food Powders** (3 cr) (BSyE WS588). See BAE J488/J588.

BAE **WS589 Food Quality Instrumentation** (3 cr) (BSyE WS589). WSU BSysE 589.

BAE **WS590 Advanced Theory of Irrigation Water Requirements** (3 cr) (AgE WS552). WSU BSysE 590. (Alt/yrs)

BAE **591 Water Resources Seminar** (1 cr) (AgE 589). See Intr 589.

BAE **WS593 Drainage Engineering** (3 cr) (AgE WS593). WSU BSysE 593.

BAE **WS596 Conservation Engineering** (3 cr) (AgE WS596). See BAE J496/J596.

BAE **599** (s) **Research** (cr arr) (AgE 599). Research not directly related to a thesis or dissertation. Prereq: perm.

BAE **600 Doctoral Research and Dissertation** (cr arr) (AgE 600).

# Biology

**Larry J. Forney, Chair, Dept. of Biological Sciences (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280).**

Note: Enrollment in lab sections of departmental courses will be limited to the number of stations available in that section.

Exception to regulation D-5: Students who transfer in a course for which the UI requires Biol 111 or 112 as a prerequisite (but who have not yet taken Biol 111 or 112), may take Biol 111 and 112 for credit.

Biol **102 Biology and Society** (4 cr) (Biol 100). *May be used as core credit in J-3-b.* Not open to majors or for minor cr. Principles of biology and their relationship to social issues. Three lec and one 3-hr lab a wk.

Biol **111 Evolution and Diversity of Life** (4 cr). *May be used as core credit in J-3-b.* Evolutionary relationships of organisms and major adaptations of organisms to their environment.

Biol **112 Biological Principles and Mechanisms** (4 cr). *May be used as core credit in J-3-b.* Overview of biological mechanisms including energy transactions, and structure, function of eukaroytic cells. Coreq: Chem 101 or 111.

Biol **120 Human Anatomy** (4 cr) (Zool 120). Study of the anatomy of the major organ systems of the human body; lab consists of studying human gross anatomy models and prosected cadavers. Three lec and one 3-hr lab a wk.

Biol **121 Human Physiology** (4 cr) (Zool 121). Study of the physiology of the major organ systems of the human body. Three lec and one 3-hr lab a wk. Prereq: Biol 120.

Biol **203 General Botany** (4 cr). Growth, development, and ecology of angiosperms in relation to heredity and environment; comparisons of angiosperms with other plant-kingdom divisions. Three lec and two 2-hr labs a wk. Prereq: Biol 112.

Biol **210 Genetics** (4 cr) (Biol 351). Genetic mechanisms in animals, plants, and microorganisms. Prereq: Biol 112.

Biol **211 Insect Biology** (4 cr). See Ent 211.

Biol **212 Molecular and Cellular Biology** (4 cr). Information flow within the cell, from DNA to proteins, basic molecular techniques, cellular architecture and cellular processes. Prereq: Biol 112.

Biol **213 Principles of Biological Structure and Function** (4 cr). Principles of physiology in plants and animals (homeostasis, hormonal and neural control systems, organismal physiology). Prereq: Biol 112.

Biol **311 Plant Physiology** (4 cr) (Bot 311). Study of the physiology of plant tissues. Three lec and one 3-hr lab a wk. Prereq: Biol 213, and Chem 275 or 277.

Biol **314 Ecology and Population Biology** (4 cr) (C) (Biol 331). Nutrient cycling and energy flow, populations, population genetics, use and construction of phylogenies, communities and biodiversity. Prereq: Biol 112; and Math 143, 160, or 170. Biol 210 recommended.

Biol **324 Comparative Vertebrate Anatomy** (4 cr) (Zool 324). General vertebrate anatomy and evolutionary changes in organ systems. Two lec and two 3-hr labs a wk. Prereq: Biol 111 and 213.

Biol **341 Systematic Botany** (3 cr) (Bot 241). Classification and identification of flowering plants; local flora. Two 1-hr lec and two 2-hr labs a wk; four 1-day field trips. Prereq: Biol 111 and 112.

Biol **354 Experimental Approaches in the Biological Sciences** (2 cr). Experimental analysis of biological systems. Prereq: Biol 210, 212, and 213, or perm.

Biol **398** (s) **Internship** (1-3 cr, max 3). Supervised internship in professional biological, non-university settings, integrating academic study with work experience; requires formal written plan of activities to be approved by academic advisor and department chair before engaging in the work; a final written report will be evaluated by on-campus faculty. Graded P/F. Prereq: perm.

Biol **405 Biological Lab Procedures** (1 or 2 cr). Organization, preparation, and assisting in lab experiments or demonstrations under faculty supervision. Graded P/F. Prereq: perm.

Biol **WS-J406/WS-J506 Microtechnique** (4 cr) (Bot WS-J406/WS-J506). WSU Bot 406/506.

Biol **411 Senior Capstone** (2 cr). Application of biological principles and information to the analysis of societal and philosophical issues. Prereq: Biol 210, 212, 213, 214, and Sr standing.

Biol **WS-J413/WS-J513 Stress Physiology of Plants** (3 cr) (Bot WS-J417/WS-J517). WSU Bot 417/517.

Biol **WS-J415/WS-J515 Plant Environmental Biophysics** (2 cr) (Bot WS-J435/WS-J545). WSU ES/RP and SoilS 414/514.

Biol **ID&WS-J417/ID&WS-J517 Endocrine Physiology** (3 cr) (Zool ID&WS-J417/ID&WS-J517). See AVS J451/J551.

Biol **421 Advanced Evolution/Population Dynamics** (3 cr). Macro and Micro evolutionary patterns and processes examined from molecular, ecological, and paleontological perspectives. Prereq: Biol 314.

Biol **J423/J523 Comparative Vertebrate Physiology** (4 cr) (Zool J423/J523). Comparative physiology of the major organ systems found in vertebrates. Additional projects/assignments reqd for grad cr. May involve some evening exams. Prereq: Biol 213, and Chem 275 or 277.

Biol **425 Special Topics: Experimental Field Ecology** (3 cr). Intensive course on diverse aspects of field ecology to be held off-campus. Various global locations (i.e. Costa Rica, Oregon coast, Hawaii) are possible. The course will be scheduled during an 8-10 day period preceding/following the Spring Term (i.e. January or May). Will involve travel and lodging costs at student expense. Prereq: Biol 111, 210, 212, 213, and 314.

Biol **ID427 Vertebrate Histology and Organology** (4 cr) (Zool ID427). WSU Zool 421. Microscopic anatomy of tissues and major mammalian organs. Three lec and 3-hr lab a wk. Prereq: Biol 112 or 120.

Biol **431 Landscape and Community Ecology** (3 cr). Course will focus on the relationships between spatial patterns found in ecosystems and ecological processes, and the effects of disturbances on landscape patterns. Prereq: Biol 314.

Biol **ID&WS435 Limnology** (4 cr) (Zool ID&WS435). WSU ES/RP and Zool 411. See Fish 415.

Biol **WS-J436/WS-J546 Plant Environmental Biophysics Lab** (1 cr) (Bot WS-J436/WS-J546**)**. WSU ES/RP and SoilS 415/515.

Biol **WS440 Introduction to Cell Biology** (3 cr) (Bot WS450). WSU GenCB 450.

Biol **J445/J545 Principles of Systematic Biology** (3 cr). The inference of evolutionary trees (phylogeny) and the processes that generate biodiversity from analyses of morphological, molecular, and behavioral data; uses of phylogenies in testing evolutionary and other hypotheses at both inter and intraspecific levels. Additional projects/assignments reqd for grad cr. Two hrs of lec and one 3-hr lab a wk. Prereq: Zool 202 or Bot 203 and Biol 351, or perm.

Biol **ID-J450/ID-J550 Comparative Vertebrate Reproduction** (3 cr) (Zool ID-J411/ID-J511). WSU Zool 451/551. Physiology of major events in reproductive cycles of vertebrates. Additional project reqd for grad cr. Prereq: Biol 111 and 213.

Biol **ID-J461/J561 Neurobiology** (3 cr) (Zool ID-J461/J561). WSU Neuro 461. Study of the nervous system, with an emphasis on mechanisms of neuronal signaling, the function of sensory and motorsystems, and neural development. Additional project reqd for grad cr. Prereq: Biol 213. Recommended: Phys 111, and Chem 275 or 277.

Biol **J474/J574 Principles of Developmental Biology** (3 cr) (Zool J472/J572). Analysis of mechanisms at cellular and molecular level during metazoan development. Additional project reqd for grad cr. Prereq: Biol 111 and 212.

Biol **478 Animal Behavior** (3 cr) (Zool 478). Evolution, causation, development, and function of behavior in vertebrates and invertebrates. Prereq: Biol 111 and 112.

Biol **J481/J581 Ichthyology** (4 cr) (Zool J481/J581). Biol 481 same as Fish 411. Anatomy, taxonomy, physiology, genetics, and zoogeography of fishes. Additional project reqd for grad cr. Three lec and one 3-hr lab a wk; one half-day field trip. Prereq: Biol 111 and 112. (Alt/sem)

Biol **483 Mammalogy** (3 cr) (Zool 483). Evolution, systematics, distribution, and biology of mammals. Two lec and one 3-hr lab a wk; one field trip. Prereq: Biol 111 and 112.

Biol **J484/J584 Invertebrate Zoology** (4 cr) (Zool J484/J584). Morphology of freshwater, marine, and terrestrial invertebrates and phylogeny of major groups. Additional project reqd for grad cr. Three lec and one 3-hr lab a wk. Prereq: Biol 111 and 112.

Biol **493 Practicum in Physical Therapy** (1 cr, max 4) (Zool 497). Minimum of two hrs a wk of practical experience in a PT clinic. Prereq: Jr standing in pre-PT or related studies and perm of UI allied health advisor.

Biol **494 Insect Anatomy and Physiology** (4 cr) (Zool 494). See Ent J484/J584.

Biol **495 Research in Molec/Cell/Dev Biology** (cr arr). Directed research in faculty laboratory. Prereq: perm.

Biol **496 Research in Ecology and Evolution** (cr arr). Directed research in faculty laboratory. Prereq: perm.

Biol **497 Research in Anatomy and Physiology** (cr arr). Directed research in faculty laboratory. Prereq: perm.

Biol **499** (s) **Directed Study** (cr arr). Prereq: perm.

Biol **501** (s) **Seminar** (cr arr). Prereq: perm.

Biol **502** (s) **Directed Study** (cr arr). Prereq: perm.

Biol **503** (s) **Workshop** (cr arr). Prereq: perm.

Biol **504** (s) **Special Topics** (cr arr). Prereq: perm.

Biol **505 Colloquium** (1 cr). Oral presentation reqd for cr. Graded P/F. Prereq: perm.

Biol **WS506 Microtechnique** (4 cr) (Bot WS506). See Biol J406/J506.

Biol **507** (s) **Research Topics in Biological Sciences** (1 cr). Seminars on research being carried out in the Department of Biological Sciences.

Biol **WS513 Stress Physiology of Plants** (3 cr) (Bot WS517). See Biol J413/J513.

Biol **WS515 Plant Environmental Biophysics** (2 cr) (Bot WS545). See Biol WS-J415/WS-J515.

Biol **ID&WS517 Endocrine Physiology** (3 cr) (Zool ID&WS517). See AVS J451/J551.

Biol **523 Comparative Vertebrate Physiology** (4 cr) (Zool 523). See Biol J423/J523.

Biol **R531 Environmental Science and Pollutants** (3 cr). Structure and function of ecosystems, sources and characteristics of hazardous materials, mechanisms and pathways of pollutant transport and degradation, mechanisms of pollutant impact on ecosystems and human health. Prereq: Biol 100 or 201, and Chem 101 or 111.

Biol **545 Principles of Systematic Biology** (3 cr). See Biol J445/J545.

Biol **WS546 Plant Environmental Biophysics Lab** (2 cr) (Bot WS546). See Biol WS-J436/WS-J546.

Biol **ID550 Comparative Vertebrate Reproduction** (3 cr) (Zool ID511). See Biol J450/J550.

Biol **WS556 Cell Biotechnology** (1-3 cr). WSU GenCB 556.

Biol **561 Neurobiology** (3 cr) (Zool 561). See Biol J461/J561.

Biol **563 Mathematical Methods for Population Genetics and Evolution** (3 cr). See Math 563.

Biol **574 Principles of Developmental Biology** (3 cr) (Zool 572). See Biol J474/J574.

Biol **581 Ichthyology** (4 cr) (Zool 581). See Biol J481/J581.

Biol **584 Invertebrate Zoology** (4 cr) (Zool 584). See Biol J484/J584.

# Botany

**Larry J. Forney, Chair, Dept. of Biological Sciences (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280).**

Bot **500 Master's Research and Thesis** (cr arr).

Bot **501** (s) **Seminar** (cr arr). Prereq: perm.

Bot **502** (s) **Directed Study** (cr arr). Prereq: perm.

Bot **503** (s) **Workshop** (cr arr). Prereq: perm.

Bot **504** (s) **Special Topics** (cr arr). Prereq: perm.

Bot **WS505 Experimental Methods in Plant Physiology** (3 cr). WSU Bot 504.

Bot **WS511 Plant Cell Biology** (3 cr). WSU Bot 511.

Bot **512 Plant Growth Substances** (3 cr). Hormonal regulation of physiological processes. Two lec and one 2-hr disc a wk. Prereq: Biol 311 and organic chemistry. (Alt/yrs)

Bot **WS518 Photosynthesis, Photorespiration, and Plant Productivity** (3 cr). WSU Bot 518.

Bot **535 Plant Geography** (3 cr). Spatial relations of plants and plant communities as determined by intrinsic factors such as genetics and evolution, and extrinsic factors such as physiography, geology, climate, and climatic change; mechanisms of distribution, discontinuity patterns. One 3-day field trip. Prereq: Biol 431 or perm. (Alt/yrs)

Bot **WS537 Field Ecology** (2 cr). WSU Bot 463/563.

Bot **539 Physiological Ecology** (3 cr). Physiological adaptations to various environmental and habitat conditions and their ecologic consequences. Two lec and one 3-hr lab a wk. Prereq: Bot 431. Biol 311 recommended.

Bot **556 Advanced Plant Molecular Biology** (3 cr). Molecular biology of plant organelles: structure of chloroplast and mitochondrial genomes and their replication; transcription, translation, and regulation of organelle genes and their interaction with nuclear genomes; genetic engineering of plant organelles-herbicide resistance, cytoplasmic male sterility. Prereq: one semester of biochemistry and/or genetics.

Bot **WS575 Basidiomycetes** (3 cr). WSU Pl P 522.

Bot **WS576 Ascomycetes and Fungi Imperfecti** (3 cr). WSU Pl P 523.

Bot **WS577 Lower Fungi** (2 cr). WSU Pl P 524.

Bot **WS580 Protein Targeting in Plant Cells** (3 cr). WSU Pl Ph 580.

Bot **600 Doctoral Research and Dissertation** (cr arr).

# Business

**Joseph J. Geiger, Head, Dept. of Business (225A J. A. Albertson Bldg. 83844-3161; phone 208/885-6295; e-mail joeg@uidaho.edu).**

Note: Enrollment in 300- and 400-level business courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.35 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

Bus **100 The Business Profession** (1 cr). Open only to freshmen and sophomores (less than 58 credits). Introduction to the environment in which the business operates and how the roles and responsibility of the business professional vary depending on the functional specialty and the level within the organization; career opportunities in business will be discussed to help students develop a strong sense of future academic and professional direction. Graded P/F. May involve field trips.

Bus **101 Introduction to Business Enterprises** (3 cr). May not be taken for credit after Bus 311 or 342. General overview of business enterprise, including key concepts and issues in production, human resources, management, marketing, information systems, finance, and accounting, as well as economic environment and ethical/social responsibilities. May involve evening exams.

Bus **200** (s) **Seminar** (cr arr).

Bus **204** (s) **Special Topics** (cr arr). Prereq: perm.

Bus **250 Introductory Systems Development** (3 cr). Introduction to event-driven and object-oriented systems development in a graphical user interface environment; significant hands-on demonstrations and uses of a variety of integrated application development tools. Prereq: 30 cr.

Bus **260 Student Investment Fund Management** (1 cr, max arr). Open only to freshman and sophomore students participating in the A.D. and J.E. Davis Student Investment Program. "Hands on" experience in investment management; students manage a funded portfolio in terms of establishing objectives, security selection, asset allocation, and portfolio performance. Graded P/F. Prereq: perm.

Bus **261 Real Estate** (3 cr). Listing, selling, leasing, financing, and brokerage; fundamentals of valuation and listing property management. This course has been certified by the Idaho Real Estate Commission.

Bus **C262 Real Estate Finance** (3 cr). Analysis of sources and methods used in the financing of real estate property construction, development, and purchase. This course has been certified by the Idaho Real Estate Commission. Prereq: Bus 261 or a course in essentials of real estate.

Bus **C263 Real Estate Law** (3 cr). Study of Idaho real estate law. This course has been certified by the Idaho Real Estate Commission. Prereq: Bus 261 or a course in essentials of real estate; BLaw 265.

Bus **298** (s) **Internship** (1-3 cr, max 6). Open only to majors in the Dept of Business. Graded P/F. Prereq: perm.

Bus **299** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **301 Financial Management** (3 cr). Policies and practices involved in acquisition, control, and allocation of financial resources in business organizations. May involve evening exams. Prereq: Acct 201, Acct 202, Stat 251 or 271, and Econ 202.

Bus **302 Intermediate Financial Management** (3 cr). Advanced course in managerial finance that addresses more complex issues such as risk in capital budgeting, working capital management, mergers, business failure and reorganization, and lease financing. May involve evening exams. Prereq: Bus 301; OR prereq or coreq: Bus 343.

Bus **311 Introduction to Management** (3 cr). Organization, planning, leadership, and control; evolution of philosophies of management, decision making, motivation, human relations, and communication; organizational behavior and theory; history and present management practices, showing interrelationships between the needs and expectations of the individual, the organization, and society. May involve evening exams.

Bus **314 World of Corporate Business** (3 cr). Current key issues affecting large corporations including personal and professional development, corporate governance and takeovers, the role of profits, corporate culture and politics, ethical issues, human resources, social responsibility, government relations, the role and functions of a chief executive officer, and doing business in the international arena; course features senior corporate executives as weekly presenters. Prereq: upper-division standing.

Bus **321 Marketing** (3 cr). Marketing institutions and relationships with economic, political, legal, and social environment; principles, functions, concepts, and issues of marketing within a firm and the relationship of marketing to other business disciplines. May involve evening exams.

Bus **324 Buyer Behavior** (3 cr). Behavioral science theories, concepts, and methods applied to the understanding and prediction of consumer behavior; emphasis on structuring marketing policy to fulfill consumer requirements. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **332 Quantitative Methods in Business** (3 cr). Survey of management science techniques including constrained optimization and simulation; probability review, forecasting tech including time series analysis and decision theory. May involve evening exams. Prereq: Stat 251 or 271, Math 160 or 170.

Bus **340 Team Building and Group Dynamics** (2 cr). Open only to undergraduate CBE majors. Issues in the formation, development, and management of work groups and teams; problems and characteristics common to group situations and strategies for improving team productivity; specific topics include increasing self-awareness, clarifying and managing team-member roles, understanding intercultural communication, capitalizing on the potential of diverse work groups, problem-solving and decision-making, project planning, and identifying the role of leadership in teams. May involve evening exams. Prereq: upper-division standing in CBE; BLaw 265; Math 160 or 170. Coreq: Bus 341, Bus 342, Acct 310, and Econ 340.

Bus **341 Business Systems** (4 cr). Open only to undergraduate CBE majors. Introduction to business as a general system; consideration of external environmental issues using an economy-industry-company framework of analysis and its extension to global scanning; discussion of socio-political forces, domestic and foreign financial markets, the role of technology in organizations; discussion of valuation models and legal issues facing organizations; examination of organizational subsystems including those responsible for generating revenues, producing the product or service, and providing support; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 340 and 342.

Bus **342 Product and Process Planning** (3 cr). Open only to undergraduate CBE majors. An overview of the marketing, engineering, financial, and production decisions involved in developing new products and determining the product mix; examination of the theory, tools, and approaches that can be used to assist managers in making effective new product and process decisions; specific topics include consumer behavior, marketing research, optimization techniques, capital budgeting, and product and process design using Total Quality Management; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 340 and 341.

Bus **343 Planning and Decision Making in Organizations** (2 cr). Open only to undergraduate CBE majors. An overview of the managerial planning process with a focus on business decision making through the collection and analysis of data; decision-making models and approaches, sources of information, value of information, pro-forma financial analysis, and forecasting; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Prereq: Bus 342. Coreq: Bus 344, Bus 345, and Acct 311. Prereq or coreq: Engl 207, 208, 209, 313, or 317.

Bus **344 Managing the Firm's Resources** (3 cr). Open only to undergraduate CBE majors. An overview of the decisions necessary for the effective management of the firm's financial, human, and information resources; topics include: management of the firm's financial structure, dividend policy, and working capital; attracting, maintaining, and developing the work force; systems planning, requirements analysis, and data design; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 343 and 345.

Bus **345 Business Operating Decisions** (3 cr). Open only to undergraduate CBE majors. An overview of the business operating decisions associated with creating demand for the firm's products and services as well as producing the system outputs; a systems approach is used to illustrate how the various business functions and support staff interact in executing these decisions; examination of the use of information technology to facilitate integration; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 343 and 344.

Bus **351 Introduction to Electronic Commerce** (3 cr). Introduction to the economic, technology and management of e-commerce. Discussion of economic basis for e-commerce, business models, information technology, and management of technology related to the operation of an e-commerce business. May involve evening exams. Prereq: Acct 202 or 205.

Bus **350 Management Information Systems** (3 cr). Data processing applications for business; intro to information systems; data base concepts; analysis, design, and implementation of computer-based information systems and consideration of associated problems. May involve evening exams.

Bus **352 Modern Information Technology** (3 cr). Introduction to IT hardware and software including computers, storage devices, telecommunications equipment, and system software. May involve evening exams. Prereq: Bus 250.

Bus **355 Systems Analysis and Design** (3 cr). Introduction to analysis and design of modern information systems. May involve evening exams. Prereq or coreq: Bus 343.

Bus **362 Real Property Appraisal** (3 cr). Theories and principles in estimating value of natural resources and any attached improvements. This course has been certified by the Idaho Real Estate Commission. Prereq: Bus 261, Econ 202 or perm.

Bus **364 Insurance** (3 cr). Major branches of insurance; principles and practices.

Bus **370 Production/Operations Management** (3 cr). Intro to production/operations management, including product design, process design, facility layout, facility location, job design, work measurement, project management, quality control, inventory management, maintenance, and operations scheduling and control. May involve evening exams. Prereq: Stat 251 or 271 or 301.

Bus **378 Project Management** (3 cr). Planning, organizing, staffing, controlling, and directing an organization's resources for special projects; topics include matrix organizations, cross functional teamwork, budgeting, work breakdown structures, critical path method (CPM), program evaluation and review techniques (PERT), capacity planning, and project control. May involve evening exams.

Bus **380 International Business** (3 cr). International trade and the nature of exchange among nations; socioeconomic environment of the multinational corporation. May involve evening exams. Prereq: Econ 202.

Bus **398** (s) **Internship** (1-3 cr, max 6). Open only to majors in the Dept of Business. Graded P/F. Prereq: perm.

Bus **400** (s) **Seminar** (cr arr). Prereq: perm.

Bus **401 Investments** (3 cr). Functioning of financial markets; types of securities and their suitability to various investment goals. Prereq: Bus 301 or 340-345.

Bus **404** (s) **Special Topics** (cr arr). Prereq: perm.

Bus **405 Portfolio Management** (3 cr). Application of security selection, portfolio theory and construction; financial futures; risk and return in investments; may involve management of actual portfolios. Prereq: Bus 401.

Bus **407 Financial Institutions** (3 cr). Management and regulation of commercial and nonmonetary financial institutions including savings and loan institutions. May involve evening exams. Prereq: Bus 301 or 340-345; Econ 343.

Bus **408 Security Analysis** (3 cr). Emphasis on theory and practice of security analysis and other techniques of financial analyses; may involve management of actual portfolios. Prereq: Bus 302. Prereq or coreq: Acct 301.

Bus **409 Problems in Financial Management** (3 cr). Analysis of selected topics in financial management; asset allocation; capital budgeting and valuation; synthesis of financial management skills through case analysis; written and oral reports and computer simulations. May involve evening exams. Prereq: Bus 302.

Bus **412 Human Resource Management** (3 cr). Human resource/personnel management functions including recruitment, training, compensation, performance appraisal, health and safety, labor relations, and legal issues. Prereq: BLaw 265 and Bus 311; OR prereq or coreq: Bus 343.

Bus **413 Organizational Behavior** (3 cr). Micro oriented treatment of areas including communication, motivation, group process, conflict, leadership style. Prereq: AgEc 391 or Bus 311; OR prereq or coreq: Bus 343.

Bus **414 Entrepreneurship** (3 cr). Process of providing solutions to identified consumer needs; characteristics of individuals who succeed; sources of venture ideas; evaluating and developing ideas; business plans; franchising.

Bus **416 Staffing and Compensation** (3 cr). Specialized human resource management topics including selection, placement, and career development of employees; development and administration of monetary-nonmonetary reward programs, job evaluation systems, and wage incentive plans. Prereq: Bus 412.

Bus **418 Organization Theory** (3 cr). Macro organization behavior; study of organization structure and processes; how environment, technology, and size impact structure and processes. Prereq: Bus 311; OR prereq or coreq: Bus 343.

Bus **420 Promotional Strategy** (3 cr) (Bus 323). Marketing management point of view; objectives, methods, strategies, budgets, and measures of effectiveness; campaign management including advertising, public relations, sales promotion, reseller support, personal selling. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **421 Marketing Research and Analysis** (3 cr). Applied research focusing on marketing information needs for managerial decision making; includes research design, data collection methods, statistical analysis, and use of marketing information systems to forecast market and sales potential, measure effectiveness of promotions, and analyze new products and distribution of goods and services. May involve evening exams. Prereq: Stat 251 or 271, and Bus 321; OR prereq or coreq: Bus 343.

Bus **422 Sales Force Management** (3 cr). Selecting, training, compensating, stimulating, supervising, and directing the selling efforts of an outside sales force; organization and method. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

BUS **423 Internet Marketing** (3). Explores how the internet is transforming the marketing mix activities in customer interactions through value-based web models. Topics include web-based business models for major industries, web technologies for personalization and customization, web communication strategies, inter distribution channels, auction pricing strategies, customer relationship management, and computer security and privacy issues. May require evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **424 Pricing Strategy and Tactics** (3 cr). Formulation of pricing strategies and tactics for new and existing products and services; survey of pricing dynamics; competitor response to pricing strategies at the firm and product level; assessment of buyer price sensitivity. Prereq: Bus 321 or 345, and Econ 202 or 272.

Bus **425 Retail Distribution Management** (3 cr). Analysis of retail operations including location, market selection, capital and physical requirements, store layout, merchandise management, customer relations, channel structure, and channel member relations. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **426 Marketing Channels Management** (3 cr) (Bus 326). Analysis of planning, organization, and control issues related to distribution of goods and services; topics include retail and wholesale institutions, channel member behavior patterns, and vertical marketing systems. Prereq: Bus 321 or Bus 340-345.

Bus **ID427 Services Marketing** (3 cr). WSU Mktg 327. Survey of concepts addressing distinctive marketing problems and opportunities in service industries, as well as current issues and trends in the service sector; includes discussion of strategies for marketing services, emphasizing the distinctive challenges and approaches that make the marketing of services different from marketing manufactured goods. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **428 Marketing Management** (3 cr). Discussion of major marketing management functions, including market and environmental analysis, as well as marketing planning, strategy, implementation, and control concepts; special emphasis on application of such concepts by developing a marketing plan that identifies market opportunities and proposes relevant marketing programs for a given case study. May involve evening exams. Prereq: Bus 324, 421, and one Tier 1 marketing elective.

Bus **437 Statistics for Business Decisions** (3 cr). Same as Stat 437. Decision making under risk; the economic theory of information; behavioral issues in decision theory. Prereq: Stat 251, 271, or 301.

Bus **439 Systems and Simulation** (3 cr). Distribution theory, random numbers, modeling concepts and simulation of queuing and inventory systems. May involve evening exams. Prereq: Bus 332 or 340-345.

Bus **441 Labor Relations** (3 cr). Evolution, structure, and procedures of contemporary labor-management relations; unionization, other concerted activity and employment at will. Prereq: Bus 311 or 340-345.

Bus **452 Business Telecommunications Management** (3 cr). Survey of telecommunications management issues in a business environment; topics include local and wide area networks, telephony, public networks, and application of telecommunications technology in strategic business management. Prereq: Bus 352; AND prereq: Bus 350 OR prereq or coreq: Bus 343.

Bus **453 Database Design** (3 cr). Introduction to modern database management systems and their use in solving business problems. May involve evening exams. Prereq: Bus 250 and 355.

Bus **454** (s) **Current Issues in Information Systems** (3 cr, max arr). Discussion of major topics of current importance in information systems. Prereq: Bus 350 or 340-345 and perm.

Bus **455 IS Project** (3 cr). Development of information systems and management of IS projects. May involve evening exams. Prereq: Bus 352, 355, and 453.

Bus **456 Quality Management** (3 cr). Same as Stat 456. Principles of total quality management, with emphasis on problem solving techniques to continually improve processes; customer-driven quality, management and employee participation, statistical process control, product/process design, and process capability. May include evening exams. May involve field trips. Prereq: Stat 251 or 271 or 301.

Bus **460 Advanced Student Investment Fund Management** (1 cr, max arr). Open only to students participating in the A.D. and J.E. Davis Student Investment Program. "Hands on" experience in investment management; students manage a funded portfolio in terms of establishing objectives, security selection, asset allocation, and portfolio performance. Graded P/F. Prereq: perm.

Bus **470 Purchasing and Materials Management** (3 cr). Overview of materials management function in organizations; includes consideration of purchasing, logistics, and inventory management. Prereq: Bus 370 or 340-345.

Bus **472 Operations Planning and Scheduling** (3 cr). In-depth study of planning and scheduling techniques with emphasis on material requirements planning. May involve evening exams and field trips. Prereq: Bus 370 or 340-345.

Bus **478 Seminar in Operations Management** (3 cr). Readings on current issues in operations management and case studies for analyzing situations faced by operations managers. May involve field trips and/or special projects. Prereq: Bus 370 or 340-345, 456, 472. Prereq or coreq: Bus 470.

Bus **481 International Finance** (3 cr). Study of financial problems facing business engaged in international activities; foreign exchange risk management, international diversification, multinational capital budgeting, country risk analysis, financing foreign investments, international financial markets. Prereq: Bus 301 and Bus 380 or Econ 446; or Bus 340-345.

Bus **482 International Marketing** (3 cr). Foreign market operations; economic, cultural, and political aspects of international markets and how they interact with the marketing mix. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **490 Strategic Management** (3 cr). Capstone, integrative course; formulation and implementation of competitive strategies; both written and oral reports and case analysis. May involve evening exams. Prereq: Engl 207 or 208 or 209 or 313 or 317; Bus 301, 311, 321, or Bus 340-345; Sr standing.

Bus **499** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **501** (s) **Seminar** (cr arr). Prereq: perm.

Bus **502** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **504** (s) **Special Topics** (cr arr). Prereq: perm.

Bus **505** (s) **Workshop** (cr arr). Prereq: perm.

Bus **530 Managing Technical Teams** (3 cr). The human side of managing teams of technical people; topics include organizational design, group process, team building, motivation, conflict management, leadership, empowerment, and performance appraisal. May involve evening exams.

Bus **531 Managing the Design Process** (3 cr). Principles of management as they relate to the design and development of new products and the improvement of existing products; focus on interrelationships between marketing, engineering, and manufacturing functions; topics include strategic implications of design, marketing strategy as it relates to product design, product life cycles, understanding customer needs, translating customer information into product specifications, use of quality management principles in design, time-to-market compression in product development, concurrent engineering, design for manufacturing, and implications of ISO 9000 on design. May involve evening exams and/or field trips. Prereq: undergraduate degree in engineering or perm.

Bus **533 Strategies for Managing Complex Systems** (3 cr). Introduction and application of general systems theory as a framework for understanding system life cycles, system management, and decision making in complex environments; topics include systems approach to problem solving, cost-benefit analysis, risk analysis, uncertainty due to conflict modeled using game theory, simulation, and linear programming. May involve evening exams. Prereq: Stat 251 or 271 or 301, Math 160 or 170.

Bus **534 Management of Technology and Technological Change** (3 cr). Introduction to advanced engineering, information, and manufacturing technologies; exploration of opportunities and challenges these technologies present the organization; topics include technology life cycles, the use of technology for competitive advantage, information systems, human-technology interactions, and managing changes; technologies considered include computer aided design/computer aided manufacturing, computer integrated manufacturing, group technology, flexible manufacturing systems, group decision support systems, and expert systems. May involve evening exams and/or field trips.

Bus **WS582 International Marketing Management** (3 cr). WSU I Bus 582. Open only to participants in College of Business and Economics International Exchange Programs.

Bus **597** (s) **Practicum** (cr arr). Prereq: perm.

Bus **598** (s) **Internship** (cr arr). Prereq: perm.

Bus **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Business Education

**James A. Gregson, Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).**

BuEd **101-102 Typewriting I-II** (2 cr). BuEd 101: development of skill sufficient for personal use. BuEd 102: speed and control to occupational competence levels.

BuEd **104 Keyboarding** (1 cr). Microcomputer keyboarding skills development. Accelerated 9-wk course. Two lec and 2 hrs of lab a wk.

BuEd **111 Computer Skills** (3 cr). Same as ITED 111. Fundamentals of computing; modules on telecommunications, hardware and software components, basic computing applications, and current computing trends.

BuEd **185 Business Computation Concepts** (2 cr). The integration of business computational concepts for solving business financial problems with the use of electronic calculators and/or computers..

BuEd **200** (s) **Seminar** (cr arr). Prereq: perm.

BuEd **203** (s) **Workshop** (cr arr). Prereq: perm.

BuEd **204** (s) **Special Topics** (cr arr). Prereq: perm.

BuEd **J210/J410 Alphabetic Shorthand I** (1 or 2 cr). Alphabetic shorthand theory, practice, dictation, and transcription (1 cr, 1/2 sem); comparative analysis of alphabetic shorthand systems and methods of teaching alpha shorthand (1 cr, 1/2 sem). Additional projects/assignments reqd for upper-div cr. Two lec and 2 hrs of lab a wk.

BuEd **211 Communication Skills for Workforce Development** (2 cr). Development of workplace skills necessary for individuals to be successful in the work environment; projects and activities to enhance skills in accessing information, problem solving, customer/co-worker relations, leadership, organization, and basic workplace literacy and efficiency; critical thinking and teamwork infused with assignments focusing on quality, continuous improvement, and flexibility.

BuEd **298** (s) **Internship** (cr arr). Prereq: perm.

BuEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

BuEd **311 Alphabetic Shorthand II** (2 cr). Speed and transcription skill development including machine transcription and methods of teaching alphabetic shorthand for vocational preparation and note taking.

BuEd **C312 Local Government Records Management** (2 cr) (C). Primarily for city clerks and other city officials. Records management, microfilming, filing, and filing equipment useful in city government record-keeping functions; legal requirements of destruction and disposal of city records in Idaho; practice of a number of city officials in Idaho in indexing city council meetings and maintaining city council files.

BuEd **328 Computer Operating Systems for Technology** (4 cr). See ITED 328.

BuEd **395 Administrative Office Procedures** (3 cr). Administrative office procedures, components, and responsibilities.

BuEd **398** (s) **Internship** (cr arr). Prereq: perm.

BuEd **400** (s) **Seminar** (cr arr). Prereq: perm.

BuEd **403** (s) **Workshop** (cr arr). Prereq: perm.

BuEd **404** (s) **Special Topics** (cr arr). Prereq: perm.

BuEd **410 Alphabetic Shorthand** (1 or 2 cr). See BuEd J210/J410.

BuEd **413 Administrative Office Management** (3 cr). Prepares students to assume management role in supervision of people, procedures, and equipment.

BuEd **J415/J515 Microcomputer Applications** (3 cr) (415, C). Same as ITED J415/J515. Advanced computer applications course designed primarily for office administration and business teacher education students; includes extensive hands-on experience using word processing, spreadsheet, and database programs used in both industry and business education programs; addresses methodology, curriculum development, and classroom management techniques; involves sizable curriculum development project. Graduate students do an advanced project. Three lec and 2 hrs of lab a wk. Prereq: BuEd 111 and/or perm.

BuEd **418 Teaching Consumer Economics** (2 cr). Methods and materials for teaching consumer economics. Prereq: Econ 201 or 100 or equiv.

BuEd **J419/J519 Information Processing Management** (3 cr). Same as ITED J419/J519. Teaching and training strategies for information retrieval, processing, storage, and distribution utilizing state-of-the-art hardware, software, technology and database management principles. Advanced project reqd for grad cr. One lec and 2 hrs of lab a wk. Prereq: BuEd 111 or perm.

BuEd **430 Supervising Business Professionals of America** (2 cr). Planning, implementation, and supervision of the Business Professionals of America vocational student organization; includes attendance at competitive events. Two lec and 2 hrs of lab a wk; attendance at regional and state leadership conference.

BuEd **457 Transitioning to Work** (2-3 cr). See ACTE 457.

BuEd **460 Desktop Publishing** (3 cr) (C). Same as ITED 460. Advanced desktop publication techniques, concepts, and applications through use of computer technology; planning, layout, and design of publications are highlighted. Prereq: BuEd/ITED 111 and BuEd/ITED 415 or perm.

BuEd **490 Records Management** (3 cr). ARMA filing rules, organization and maintenance of paper files, using database management software.

BuEd **491-492 Teaching Business Education I-II** (2-3 cr). Methods and materials. BuEd 491: basic business subjects. BuEd 492: office occupations. Prereq: perm.

BuEd **493 Teaching Marketing Education** (3 cr). Selection, organization, and presentation of subject matter pertaining to preparatory marketing education programs at the secondary-school level; emphasis on teaching methods and techniques.

BuEd **494 Marketing Education Materials** (2 cr). Examination, development, and application of instructional materials in marketing education.

BuEd **495 Supervising DECA Programs** (2 cr). Role of DECA in marketing education; organization and implementation of youth activities.

BuEd **496 Directed Work Experience** (1-3 cr, max 9). Same as PTE 496. Job analysis and descriptions; weekly work-experience reports and analysis coordinated with problems related to the student's employment in an approved work station. Prereq: perm.

BuEd **497** (s) **Practicum** (cr arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

BuEd **498** (s) **Internship** (cr arr). Prereq: perm.

BuEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

BuEd **500 Master's Research and Thesis** (cr arr).

BuEd **501** (s) **Seminar** (cr arr). Prereq: perm.

BuEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

BuEd **503** (s) **Workshop** (cr arr). Prereq: perm.

BuEd **504** (s) **Special Topics** (cr arr). Prereq: perm.

BuEd **515 Microcomputer Applications** (3 cr). See BuEd J415/J515.

BuEd **519 Information Processing Management** (3 cr). See BuEd J419/J519.

BuEd **520 Office Technology Subjects** (3 cr). Advanced methods and strategies of teaching office technology competencies, ISTE standards, and the integration of technology into a business curriculum.

BuEd **521 Basic Business and Accounting Education** (3 cr). Advanced methods and strategies for teaching general business, business math, entrepreneurship, business law, management, and marketing at the secondary or adult level; additional emphasis on teaching computerized and non-computerized accounting.

BuEd **522 Issues in Business Education** (3 cr). Philosophies, objectives, trends, and organization patterns of business education in secondary schools. Prereq: perm.

BuEd **524 Issues in Marketing Education** (3 cr). Same as PTE 524. Philosophies, objectives, trends, and organization patterns of marketing education in secondary schools. Prereq: perm.

BuEd **597** (s) **Practicum** (cr arr). Prereq: perm.

BuEd **598** (s) **Internship** (cr arr). Prereq: perm.

BuEd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Business Law

**Joseph J. Geiger, Head, Dept. of Business (225A J. A. Albertson Bldg. 83844-3161; phone 208/885-6295; e-mail joeg@uidaho.edu).**

Note: Enrollment in 400-level business law courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.35 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

BLaw **265 Legal Environment of Business** (3 cr) (C). Law and its relationship to society; legal framework of business enterprises; court organization and operation; private property and contracts as basic concepts in a free enterprise system. May involve evening exams.

BLaw **420 Commercial Law** (3 cr). Uniform commercial code and law of agency, partnerships, and corporations. May include evening exams. Prereq: BLaw 265.

# Chemical Engineering

**Wudneh Admassu, Chair, Dept. of Chemical Engineering (312 Buchanan Engr. Lab. 83844-1021; phone 208/885-6793).**

ChE **110 Introduction to Chemical Engineering** (1 cr). Introduction to chemical engineering career opportunities and process principles including problem solving and documentation skills. Graded P/F.

ChE **123 Computations in Chemical Engineering** (2 cr). Methods of analyzing and solving problems in chemical engineering using personal computers; spreadsheet applications, data handling, data fitting, material balances, experimental measurements, separations, and equation solving. Coordinated lec-lab periods.

ChE **204** (s) **Special Topics** (cr arr). Prereq: perm.

ChE **223 Material and Energy Balances** (3 cr). Conservation of mass and energy calculations in chemical process systems. Prereq: Chem 112, Math 175.

ChE **299** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **326 Chemical Engineering Thermodynamics** (3 cr). Behavior and property estimation for nonideal fluids; phase and reaction equilibria; applications to industrial chemical processes. Prereq: ChE 223, Engr 320 and 335, Math 310; coreq: Chem 305.

ChE **330 Separation Processes I** (3 cr). Equilibrium stagewise operations, including distillation, extraction, absorption. Prereq: ChE 326, Chem 305.

ChE **340-341 Transport and Rate Processes I-II** (4 cr). Transport phenomena involving momentum, energy, and mass with applications to process equipment design. Coordinated lec-lab periods. Prereq for 340: ChE 223, Engr 320 and 335, Math 310. Prereq for 341: ChE 340.

ChE **393 Chemical Engineering Projects** (1-3 cr, max 9). Problems of a research or exploratory nature. Prereq: perm of dept.

ChE **398** (s) **Engineering Cooperative Internship** (3 cr). Supervised internship in professional engineering settings, integrating academic study with work experience; requires written report; positions are assigned according to student's ability and interest. Graded P/F. Prereq: perm.

ChE **404** (s) **Special Topics** (cr arr). Prereq: perm.

ChE **415 Integrated Circuit Fabrication** (3 cr). Growth of semiconductor crystals, microlithography, and processing methods for integrated circuit fabrication. Prereq: ChE 223.

ChE **423 Reactor Kinetics and Design** (3 cr). Chemical reaction equilibria, rates, and kinetics; design of chemical and catalytic reactors. Prereq: ChE 223, Math 310, Chem 305.

ChE **433 Chemical Engineering Lab I** (1 cr). Senior lab experiments in chemical engineering. Prereq: ChE 330, 341, 423.

ChE **434 Chemical Engineering Lab II** (1 cr). Senior lab experiments in chemical engineering. Prereq: ChE 330, 341, 423.

ChE **444 Process Analysis and Control** (3 cr). Process modeling, dynamics, and analysis. Prereq: ChE 223, Math 310.

ChE **445 Digital Process Control** (3 cr). Same as EE 477. Dynamic simulation of industrial processes and design of digital control systems. Two lec and one 3-hr lab a wk. Prereq: ChE 444 (prereq for EE majors: EE 350).

ChE **451-452 Environmental Management and Design** (3 cr, max arr). Same as EnvE and EnvS 451-452. Waste management application projects; projects require original design, working model, and report. May involve week-long trip to national competition. One lec and 3 hrs of lab a wk; weekly team status report meetings plus weekly task reviews with advisor. Prereq: perm (by invitation only).

ChE **453-454 Chemical Process Analysis and Design** (3 cr). Estimation of equipment and total plant costs, annual costs, profitability decisions, optimization; design of equipment, alternate process systems and economics, case studies of selected processes. ChE 453 and 454 are to be taken in sequence. Prereq: ChE 330, 341, 423.

ChE **J460/ID&WS-J560 Biochemical Engineering** (3 cr). WSU Ch E 560. ChE 560 same as EnvE 560. Application of chemical engineering to biological systems including fermentation processes, biochemical reactor design, and biological separation processes. Additional projects/assignments reqd for grad cr.

ChE **J470/J570 Hazardous Waste Management** (3 cr). ChE 570 same as EnvE 570. Credit not granted for both ChE J470/J570 and EnvS R470. Principles and practices of management of hazardous and solid wastes with emphasis on CERCLA (Superfund) process for cleanup of uncontrolled hazardous waste sites and RCRA process as it applies to industrial waste treatment, storage, and disposal (TSD) facilities. Additional projects/assignments reqd for grad cr. Prereq: Stat 301, sr or grad standing in science or engineering, and perm.

ChE **ID&WS-J475/ID&WS-J575 Air Pollution Control** (2-3 cr). WSU C E 408/508. ChE 575 same as EnvE 575. Analysis and design of physical and chemical methods of air pollution control; particulate and gas emission control methods, standards for sources. Additional projects/assignments reqd for grad cr. Prereq: Engr 335 or perm.

ChE **ID-J480/ID-J580 Engineering Risk Assessment for Hazardous Waste Evaluations** (3 cr). WSU ES/RP 473/573. ChE 580 same as EnvE 580. Quantitative and qualitative approaches to assessing risks to public health and environment from chemical contaminants; toxicology, exposure assessment, risk characterization, and environmental modeling; critical reviews of specific toxins and actual waste site studies. Additional projects/assignments reqd for grad cr. Prereq: senior or grad standing in science or engineering; Biol 201 or 100 and Stat 301 or perm; ChE J470/J570 recommended.

ChE **491** (s) **Seminar** (1 cr). Recent developments and topics. Graded P/F. Prereq: sr standing.

ChE **499** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **500 Master's Research and Thesis** (cr arr).

ChE **501** (s) **Seminar** (cr arr). Prereq: perm.

ChE **502** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **504** (s) **Special Topics** (cr arr). Prereq: perm.

ChE **ID&WS515 Transport Phenomena** (3 cr). Same as ME 515. WSU Ch E 510. Advanced treatment of momentum, energy, and mass transport processes; solution techniques. Prereq: B.S.Ch.E. and equivalent of ChE 340, 341 or perm.

ChE **ID&WS527 Thermodynamics** (3 cr). WSU Ch E 527. Thermodynamic laws for design and optimization of thermodynamic systems, equations of state, properties of ideal and real fluids and fluid mixtures, stability, phase equilibrium, chemical equilibrium, applications of thermodynamic principles. Prereq: B.S.Ch.E. and equivalent of ChE 326 or perm.

ChE **ID&WS529 Chemical Engineering Kinetics** (3 cr). WSU Ch E 529. Interpretation of kinetic data and design of reactors for heterogeneous chemical reaction systems; heterogeneous catalysis, gas-solid reactions, gas-liquid reactions; packed bed reactors, fluidized bed reactors. Prereq: B.S.Ch.E. and equivalent of ChE 423 or perm.

ChE **541 Chemical Engineering Analysis I** (3 cr). Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer applications. Prereq: B.S.Ch.E. and equivalent of ChE 444 or perm.

ChE **ID&WS545-ID&WS546 Mass Transfer Operations I-II** (3 cr). WSU Ch E 546. Diffusional and equilibrium operations. Prereq: B.S.Ch.E. and equivalent of ChE 341 or perm.

ChE **WS551 Discrete Digital Control** (3 cr). WSU Ch E 551.

ChE **ID&WS560 Biochemical Engineering** (3 cr). See ChE J460/J560.

ChE **570 Hazardous Waste Management** (3 cr). See ChE J470/J570.

ChE **ID571 Advanced Plant Design** (3 cr). WSU Ch E 571. Design of process plants for optimum costs and economic return; scale-up of pilot plants. Prereq: B.S.Ch.E. and equivalent of ChE 453 or perm.

ChE **ID&WS575 Air Pollution Control** (2-3 cr). See ChE J475/J575.

ChE **578 Treatment of Hazardous Chemical Waste** (3 cr). Same as EnvE 578. Design of alternative processes and operations for treatment of hazardous chemicals. Prereq: Math 310 and ChE 341 or CE 431.

ChE **579 Hazardous Waste Site Remediation Design** (3 cr). Same as EnvE and Hydr 579. Characterization of hazardous waste sites, identification of physical, chemical, and biological corrective action programs and site restoration; includes design problems and case studies to illustrate corrective action and site restoration in compliance with regulations. Prereq: Geol 309.

ChE **ID580 Engineering Risk Assessment for Hazardous Waste Evaluations** (3 cr). See ChE J480/J580.

ChE **581 Hazardous Waste Management Seminar** (1 cr). Environmental engineering and science topics related to hazardous waste characterization, cleanup, and regulations; includes case histories, paper, and oral presentation. Prereq: perm.

ChE **600 Doctoral Research and Dissertation** (cr arr).

# Chemistry

**Chien M. Wai, Chair, Dept. of Chemistry (116 Malcolm M. Renfrew Hall 83844-2343; phone 208/885-6552; e-mail chemoff@uidaho.edu).**

RELATED FIELD: See microbiology, molecular biology and biochemistry.

**Vertically-related courses in this subject field are:** Chem 111-112-253; 101-275.

**NOTE:** Students may not register for a course lower in number than that required by their major. When a change in degree requirements forces a student to take a higher number course after completing a lower number course, a maximum of two credits (earned in Chem 299) will be awarded for the higher number course. Students should check the curricular requirements for their major to be sure they are registered for the correct chemistry class.

Chem **050 Chemistry Fundamentals** (0 cr). Chemical problem solving, SI unit conversion, mole concept, chemical stoichiometry, solution concentration problems, periodic table, chemical formulas and nomenclature, and equation balancing. Graded P/N/F. A special fee is charged for this course.

Chem **100 Chemistry and the Citizen** (4 cr). *May be used as core credit in J-3-b.* Not acceptable as a substitute where Chem 101, 111, or equiv is specified. Full credit may be earned in only one of the following: Chem 100, 101, or 111. Nonmathematical descriptive treatment relating key developments of chemistry to modern living. Three lec, dem, and one 2-hr lab a wk.

Chem **101 Introduction to Chemistry I** (4 cr). *May be used as core credit in J-3-b.* Full credit may be earned in only one of the following: Chem 100, 101, or 111. General treatment of the fundamentals of chemistry. Three lec and one 3-hr lab a wk. Does not satisfy the prereq for Chem 112. No prerequisite.

Chem **111 Principles of Chemistry I** (4 cr). *May be used as core credit in J-3-b.* Full credit may be earned in only one of the following: Chem 100, 101, or 111. Intensive treatment of principles and applications of chemistry. Three lec, one 3-hr lab, and one optional recitation a wk. Prereq: Chem 050 or adequate score on the chemistry fundamentals exam or satisfy departmental requirement.

Chem **112 Principles of Chemistry II** (5 cr). *May be used as core credit in J-3-b.* Continuation of Chem 111. Some work in inorganic chemistry, kinetics, equilibrium, liquids, solids, acid-base, electrochemistry, nuclear chemistry, thermodynamics, and qualitative inorganic analysis. Three lec, one recitation, and one 3-hr lab a wk. Prereq: Chem 111 or perm.

Chem **121 Glassblowing** (1 cr). Techniques used in constructing scientific apparatus from glass. Graded P/F. One 3-hr lab a wk. Prereq: perm of dept.

Chem **200** (s) **Seminar** (cr arr). Prereq: perm.

Chem **204** (s) **Special Topics** (cr arr). Prereq: perm.

Chem **253 Quantitative Analysis** (5 cr). Fundamental principles and techniques of chemical analysis; intro to sampling, standardization, data evaluation, gravimetric/volumetric methods, and instrumental techniques. Three lec and two 3-hr labs a wk. Prereq: Chem 112. (Fall only)

Chem **275 Carbon Compounds** (3 cr). Aspects of organic chemistry important to students in the life sciences. Prereq: Chem 101, 111, or perm.

Chem **276 Carbon Compounds Lab** (1 cr). Lab to accompany Chem 275; for students who need only 1 cr of lab. One 3-hr lab a wk. Prereq or coreq: Chem 275 or 277.

Chem **277 Organic Chemistry I** (3 cr). Principles and theories of organic chemistry; properties, preparation, and reactions of organic compounds. Prereq: Chem 112.

Chem **278 Organic Chemistry I: Lab** (1 cr). One 3-hr lab a wk. Prereq or coreq: Chem 277.

Chem **299** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **302 Principles of Physical Chemistry** (3 cr). Emphasis on topics important to biological and agricultural science. Prereq: Chem 112, Math 160 or 170 or 175, and Phys 111, or perm. (Fall only)

Chem **303 Principles of Physical Chemistry Lab** (1 cr). Lab to accompany Chem 302. One 3-hr lab a wk. Prereq or coreq: Chem 302. (Fall only)

Chem **305-306 Physical Chemistry** (3 cr). Kinetic theory, thermodynamics, quantum mechanics, and spectroscopy. Prereq: Chem 112, and Math 275. Prereq or coreq: Phys 212 or 213. (Chem 305: fall only. Chem 306: spring only)

Chem **307-308 Physical Chemistry Lab** (1 cr). Lab to accompany Chem 305-306. One 3-hr lab a wk. Prereq or coreq for Chem 307: Chem 305. Prereq or coreq for Chem 308: Chem 306. (Chem 307: fall only. Chem 308: spring only)

Chem **J318/J418 Environmental Chemistry** (3 cr). Chemistry of atmosphere, soil, and water; pollution monitoring and remediation; treatment of waste in the environment. Registration for Chem 418 requires additional project. Prereq: Chem 253, and Chem 275 or 277, or perm. (Spring only)

Chem **372 Organic Chemistry II** (3 cr). Continuation of Chem 277. Prereq: Chem 277. (Spring only)

Chem **374 Organic Chemistry Lab for Engineers** (1 cr). For students in engineering. Lab to accompany Chem 372; includes synthesis, structure determination, and mechanisms. One 3-hr lab a wk. Prereq: Chem 278. Prereq or coreq: Chem 372. (Spring only)

Chem **376 Organic Chemistry II: Lab** (2 cr). Lab to accompany Chem 372, includes qualitative analysis and modern instrumental techniques. Two 3-hr labs a wk. Prereq: Chem 278. Prereq or coreq: Chem 372. (Spring only)

Chem **400** (s) **Seminar** (cr arr). Prereq: perm.

Chem **404** (s) **Special Topics** (cr arr). Prereq: perm.

Chem **409 Proseminar** (1 cr). Current publications in chemistry and chemical engineering with reports on typical scientific papers. Prereq: Chem 372 and Sr standing. (Fall only)

Chem **418 Environmental Chemistry** (3 cr). See Chem J318/J418. (Spring only)

Chem **J435/J535 Principles of Chemical Instrumentation** (4 cr). Practical theory and application of modern analog/digital electronics and small computers to chemical measurement and control systems. Registration for Chem 535 requires completion of an additional term paper or other assignment. One hr of lec and one 3-hr lab a wk. Prereq: Chem 253 or 454, Phys 212, or perm. (Fall only)

Chem **441 Chemical Literature** (1 cr). Survey of important chemistry reference works and periodicals; use of these sources. Prereq: perm. (Spring only)

Chem **J453/J553 Separation Theory and Chromatography** (3 cr). Gas and liquid chromatography and related fields. Students enrolled in Chem 553 are required to complete additional written assignments. Prereq: Chem 306.

Chem **454 Instrumental Analysis** (4 cr). For students in chemistry and allied fields. Techniques in operating new and specialized instruments for qualitative and quantitative analysis and analytical methods of an advanced nature. Three lec and one 4-hr lab a wk. Prereq: Chem 253 and 305. Prereq or coreq: Chem 306. (Spring only)

Chem **455 Survey of Analytical Chemistry** (3 cr). Fundamentals of modern analytical chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 454 and 455. Prereq: Chem 306 and perm.

Chem **J456/J556 Molecular Spectroscopy** (3 cr). Interpretation of IR, UV, NMR, and mass spectra. Registration for Chem 556 requires completion of additional assignments. Prereq: Chem 306 or perm.

Chem **463-J464/ID-J564 Inorganic Chemistry** (3 cr). WSU Chem 507. Principles, complex ions and coordination compounds, theory of acids and bases, bonding theory, non-aqueous solvents, familiar elements and their relationship to the periodic table. Additional projects/assignments reqd for grad cr. Prereq for 463: Chem 305 or perm. Prereq or coreq for Chem J464/J564: Chem 463, or 466, or perm. (Chem 463: fall only. Chem 464: spring only)

Chem **465 Inorganic Chemistry Laboratory** (1 cr). Lab to accompany Chem 464. One 3-hr lab a wk. Coreq: Chem 464. (Spring only)

Chem **466 Survey of Inorganic Chemistry** (3 cr). Fundamentals of modern inorganic chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 463 and 466. Prereq: Chem 306 and perm.

Chem **J467/J567 Inorganic Spectroscopy** (3 cr). Applications of spectroscopic methods to investigation of inorganic and organometallic compounds; topics include multinuclear and multidimensional NMR, IR and Raman, EPR, mass spectroscopy, Mossbauer spectroscopy, and x-ray crystallography. Additional projects/assignments reqd for grad cr. Prereq: Chem 306 and 454. (Alt/yrs)

Chem **J468/ID-J568 Organometallic Chemistry** (3 cr). WSU Chem 504. Structure, bonding, and reaction chemistry of organotransition metal compounds; applications to homogeneous catalysis. Additional projects/assignments reqd for grad cr. Prereq: Chem 305-306. Prereq or coreq: Chem 463 or 466 or perm. (Alt/yrs)

Chem **J472/J572 Rational Design of Pharmaceuticals** (3 cr). Synthetic chemistry necessary for design and preparation of medicinal agents, and mechanistic chemistry germane to action of pharmaceuticals. Graduate students are required to write an original research proposal on a topic related to drug discovery. Prereq or coreq: Chem 473, 476 or perm. (Alt/yrs)

Chem **473 Intermediate Organic Chemistry** (3 cr). Theories and mechanisms of organic chemistry. Prereq: Chem 372. Prereq or coreq: Chem 306. (Fall only)

Chem **476 Survey of Organic Chemistry** (3 cr). Fundamentals of modern organic chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 473 and 476. Prereq: Chem 306 and perm.

Chem **484 Biochemistry Laboratory** (2 cr). See MMBB 484.

Chem **491** (s) **Research** (1-6 cr, max 6). Submission of a report of the research done for placement in the permanent dept files is required. Prereq: perm of dept.

Chem **495 Thermodynamics and Kinetics** (3 cr). Prereq: Chem 306 or equiv. (Fall only)

Chem **496 Survey of Physical Chemistry** (3 cr). Fundamentals of modern physical chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 495 and 496. Prereq: Chem 306 and perm.

Chem **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Chem **498** (s) **Internship** (cr arr). Prereq: perm.

Chem **499** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **500 Master's Research and Thesis** (cr arr).

Chem **501** (s) **Seminar** (cr arr). Prereq: perm.

Chem **502** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **504** (s) **Workshop** (cr arr). Prereq: perm.

Chem **506 Introduction to Teaching and Research Skills** (2 cr). Skills required of teaching assistants in laboratory, recitations, office hours, help sessions; skills required for research; use of library; introduction to faculty research. Graded P/F. Prereq: perm. (Fall only)

Chem **507** (s) **Topics in Physical Chemistry** (1-9 cr, max 9). Selected topics in modern physical chemistry such as computational quantum mechanics, statistical mechanics, nonequilibrium thermodynamics, group theory, molecular dynamics, theory of condensed phases, or other topics not covered in regularly scheduled courses. Prereq: Chem 495, 496, or perm.

Chem **509-510 Advanced Physical Chemistry** (3 cr). Application of quantum theory to chemical bonding, molecular spectroscopy, and molecular structure. Prereq: Chem 306, 495, 496, or perm. (Chem 509: spring only. Chem 510: fall only)

Chem **513 Nuclear Chemistry** (3 cr). Intro to artificial and natural radioactivity, tracer methods, and atomic energy. Prereq: Chem 306 or Phys 305 or perm. (Alt/yrs)

Chem **535 Principles of Chemical Instrumentation** (4 cr). See Chem J435/J535.

Chem **541 Biochemistry** (3 cr). See MMBB 541.

Chem **542 Biochemistry and Molecular Biology** (3 cr). See MMBB J442/J542.

Chem **550 Radioanalytical Chemistry** (3 cr). Fundamental concepts of radiochemistry, including the principles of radioactive decay processes and counting techniques; in-depth treatment of radioanalytical techniques, especially neutron activation and isotope dilution methods; decay processes as sources of x-rays; the use of synchrotron radiation in analytical chemistry. Prereq: Chem 454, or 455, or perm. (Alt/yrs)

Chem **551 Electronic Spectrometry** (3 cr). A brief review of fundamental concepts, including electronic transitions, optical properties of materials, and laws of radiation absorption; detailed coverage of instrumentation used for ultraviolet and visible absorption spectroscopy, with regard to optical components, overall design strategy, and signal processing; analytical performance related to these aspects and presented from both theoretical and practical standpoints; in-depth coverage of luminescence spectroscopy, including phosphorimetry and fluorimetry; atomic spectroscopy (both flame and plasma-based versions), including principles of operation, instrumental requirements, and analytical application; survey of x-ray absorption and fluorescence spectroscopy. Prereq: Chem 454, 455 or perm. (Alt/yrs)

Chem **552 Analytical Vibrational Spectrometry** (3 cr). Introduction to vibrational transitions, optical properties of materials, and laws of radiation absorption and emission (including why they are not always obeyed in practice); detailed discussion of instrumentation used for mid-infrared, near infrared, and Raman spectrometry; illustration of transmission spectrometry with examples including microscopy and spectral imaging, open-path monitoring, and spectroscopy of aqueous solutions and hyphenated techniques; introduction of time- and phase-resolved measurements; detailed coverage of specular reflection, reflection-absorption of thin films, diffuse reflection, attenuated total reflection spectrometry, and remote measurements through optical fibers; discussion of application of near infrared spectroscopy to agricultural commodity analysis and process monitoring. Prereq: Chem 454, 455 or perm. (Alt/yrs)

Chem **553 Separation Theory and Chromatography** (3 cr). See Chem J453/J553.

Chem **555 Advanced Analytical Chemistry** (3 cr). Fundamental principles of analysis; sampling; measurement validation; statistical evaluation; optimization techniques; pattern recognition; information theory. Prereq: Chem 306, 454, 455, or perm.

Chem **556 Molecular Spectroscopy** (3 cr). See Chem J456/J556.

Chem **557** (s) **Topics in Analytical Chemistry** (1-9 cr, max 9). Atomic and molecular analytical spectroscopy; modern electrochemical methods; radioanalytical techniques; surface analysis techniques. Prereq: Chem 454, 455, or perm.

Chem **558 Electrochemistry** (3 cr). Fundamental concepts of electrochemistry, including the principles of redox processes; in-depth treatment of electroanalytical techniques, especially voltammetric and potentiometric methods; advanced treatment of selected topics, including ultramicro and in vivo electrochemical techniques. Prereq: Chem 454, or 455, or perm. (Alt/yrs)

Chem **561 Advanced Inorganic Chemistry** (3 cr). Theoretical approach to the underlying principles of inorganic chemistry; integration of theory and descriptive chemistry. Prereq: Chem 306, 463, 466, or perm. (Alt/yrs)

Chem **ID564 Inorganic Chemistry** (3 cr). See Chem 463-J464/J564.

Chem **ID565** (s) **Topics in Inorganic Chemistry** (1-9 cr, max 9). WSU Chem 508. Coordination compounds; halogens; less familiar elements; clathrate, interstitial, nonstoichiometric compounds; chemical bonding; inorganic reaction mechanisms. Prereq: Chem 463, 466, or perm.

Chem **567 Inorganic Spectroscopy** (3 cr). See Chem J467/J567.

Chem **ID568 Organometallic Chemistry** (3 cr). See Chem J468/J568.

Chem **569 Fluorine Chemistry** (3 cr). Brief history of fluorine beginning with its isolation in 1886 through current areas of interest in fluorochemicals; in-depth study of modern synthetic methods of fluorinated compounds and their potential applications today and in the future. Prereq: Chem 463, 466, or perm. (Alt/yrs)

Chem **571** (s) **Topics in Organic Chemistry** (1-9 cr, max 9). Selected topics from the current literature. Prereq: Chem 473, 476, or perm.

Chem **572 Rational Design of Pharmaceuticals** (3 cr). See Chem J472/J572.

Chem **573 Synthetic Organic Chemistry** (3 cr). Use of organic reactions in synthesis. Prereq: Chem 473, 476, or perm. (Alt/yrs)

Chem **583 Lipids and Membranes** (3 cr). Biosynthesis and metabolism of major classes of complex lipids and sterols; structure, function, and properties of biomembranes and membrane models. Prereq: MMBB 542. (Alt/yrs)

Chem **584 Nucleic Acids** (3 cr). Structure, function, and metabolism of nucleic acids. Prereq: perm. (Alt/yrs)

Chem **590 Doctoral Research Proposal** (1 cr). Taken no later than one semester after completion of cumulative exams; required for advancement to Ph.D. candidacy. Includes review of relevant literature and original research proposal describing the student's intended research project.

Chem **600 Doctoral Research and Dissertation** (cr arr).

# Civil Engineering

**Sunil Sharma, Interim Chair, Dept. of Civil Engineering (104 Buchanan Engr. Lab. 83844-1022; phone 208/885-6782).**

CE **115 Introduction to Civil Engineering** (2 cr). Graded P/F. Introduction to engineering design process and analysis techniques including problem solving skills, development of software use skills, graphical analysis, data analysis, economic decision making, documentation skills, and use of structured programming concepts in designing personal applications. Prereq: major in civil engineering.

CE **200** (s) **Seminar** (cr arr). Prereq: perm.

CE **203** (s) **Workshop** (cr arr). Prereq: perm.

CE **204** (s) **Special Topics** (cr arr). Prereq: perm.

CE **211 Engineering Measurements** (3-4 cr). For engineering and cartography students. Theory and practice; types and distribution of errors; manipulation of instruments; route and land surveying; construction survey; intro to photogrammetry. Two lec and one 3-hr lab a wk; additional 1-hr recitation a wk for 4 cr reqd unless waived by exam. Prereq: Math 143 or 170 or 175, and Engr 105.

CE **215 Civil Engineering Analysis and Design** (2 cr). Application of modern basic science, mathematics, and fundamental engineering principles to solution of civil engineering design problems by analytic and numeric methods; use of structured programming concepts in designing applications Prereq: CE 115, Engr 105, Phys 211, and Math 170.

CE **218 Elementary Surveying** (2 cr). Primarily for nonengineering students. Theory of measurements and manipulation of surveying instruments; application of surveying methods to construction; topographic and land surveys. One lec and one 3-hr lab a wk. Prereq: Math 143.

CE **299** (s) **Directed Study** (cr arr). Prereq: perm.

CE **311 Computer Aided Site Engineering Design** (3 cr). Design of site engineering projects using land development software to analyze engineering problems and create design drawings. Demonstration of computer aided drafting and design (CADD) methods. Three hours lecture per week. Prereq: CE 211.

CE **316 Advanced and Route Surveys** (3 cr). Advanced survey methods including state plan coordinate systems, practical astronomy, and route surveys; field layout to include meridian determination, circular curves, spirals, setting slope and grade stakes, bridge and culvert surveys. Two lec and one 3-hr lab a wk. Prereq: CE 211. (Alt/yrs)

CE **317 Land Surveying** (2 cr). History and development; related laws; preparation and filing of property descriptions and plats; subdivision planning; methods for property surveys. Prereq: CE 211. (Alt/yrs)

CE **322 Hydraulics** (3 cr). Applied principles of fluid mechanics; closed conduit flow, hydraulic machinery, open channel flow; design of hydraulic systems. Prereq: Engr 222 and 335. Coreq: CE 215.

CE **323 Hydraulics Laboratory** (1 cr). Laboratory exercises on closed conduit flow, hydraulic machinery, open channel flow and mixing process. Ten 1-hr lec, 7 unsupervised lab sessions with hours varying from 2 to 4 hrs each. Prereq or coreq: CE 322. Coreq: CE 215.

CE **325 Fundamentals of Hydrologic Engineering** (3 cr). Same as BAE 355. Principles of hydrologic science and their application to the solution of hydraulic, hydrologic, environmental, and water resources engineering problems; application of principles and measurements of precipitation, evaporation, infiltration, and snowmelt in development of rainfall-runoff models appropriate to various catchment scales for engineering purposes; some emphasis on urban hydrology problems, stormwater management, and mathematical modeling. Some field exercises. Prereq: Math 310, Stat 301, and Engr 335.

CE **330 Fundamentals of Environmental Engineering** (3 cr). Introduction to key concepts of environmental engineering, including ecological, chemical, and microbiological processes; types and effects of pollutants; treatment of water, wastewater, sludges, and solid waste; control of air, noise, and agricultural pollution. Two lec and one 2-hr lab a wk. Prereq: Engr 335, Chem 112, and Math 310. Coreq: CE 215.

CE **342 Theory of Structures** (3 cr). Stresses and strains in statically determinate and indeterminate beam, truss, and rigid frame structures; effects of moving loads; matrix displacement method. Two lec and one 3-hr lab a wk. Prereq: Engr 350 and Math 310.

CE **357 Properties of Construction Materials** (3 cr). Principles of construction materials, composition and behavior, test methods, interpretations, and report writing; materials covered are aggregates, cements, concretes, metals, wood, and polymers. Two lec, two hrs of lab, and 1 hr of recitation a wk. Prereq: Engr 350, Math 310. Coreq: CE 215 and Stat 301.

CE **360 Fundamentals of Geotechnical Engineering** (4 cr). Same as GeoE 362. Soil composition, descriptions, and classification systems; permeability and seepage; capillarity and suction; total, effective, and neutral stresses, compression and volume changes; shear strength; compaction. Two lec, 2 hrs of lab, and 1 hr of recitation a wk. Prereq: Engr 335, Engr 350, and Math 310.

CE **372 Fundamentals of Transportation Engineering** (4 cr). Intro to planning, design, and operation of highway and traffic, public transportation, and airport systems. Three lec and one 3-hr lab a wk; periodic field data collection and one or two field trips. Prereq: Stat 301 and CE 211.

CE **400** (s) **Seminar** (cr arr). Prereq: perm.

CE **402 Applied Numerical Methods for Engineers** (3 cr). Approximate and numerical methods for solution of systems of linear and nonlinear equations, initial value, boundary value, and partial differential equations with practical applications, analysis of error, improvement of accuracy, and numerical and matrix techniques for computation by digital computer. Prereq: Math 310 and a high level programming language.

CE **403** (s) **Workshop** (cr arr). Prereq: perm.

CE **404** (s) **Special Topics** (cr arr). Prereq: perm.

CE **411 Engineering Fundamentals** (1 cr). Review of basic engineering and science material covered in Fundamentals of Engineering exam. Graded P/F. Prereq: Sr standing or perm.

CE **J420/J520 Fluid Dynamics** (3 cr). See ME J420/J520.

CE **421 Engineering Hydrology** (3 cr). See BAE 451.

CE **ID&WS-J422/ID-J522 Hydraulic Design** (3 cr). WSU C E 450. Hydraulic design of open channel and closed conduit conveyance structures, control structures, protective structures and systems; project oriented problems. Extra design projects or different design projects for grad cr. One field trip. Prereq: CE 322 or equiv, Engr 360, or perm.

CE **428 Open Channel Hydraulics** (3 cr). See BAE 458.

CE **431 Design of Water and Wastewater Systems I** (3 cr). Application of basic engineering science to treatment of domestic and industrial water supplies; treatment and disposal of domestic sewage and industrial wastes. Two lec and one 3-hr lab a wk. Prereq: CE 322, 330, Engr 335, or perm.

CE **ID&WS-J432/ID&WS-J532 Design of Water and Wastewater Systems II** (3 cr). WSU C E 544. CE 532 same as EnvE 532. Application of unit operations and processes to design of integrated wastewater treatment systems; critical analysis of existing designs. Additional projects/assignments reqd for grad cr. Prereq: CE 431.

CE **J433/J533 Water Quality Management** (3 cr). CE 533 same as EnvE 543. Physical, chemical, and biological techniques for analysis of water quality management problems; development of design criteria for corrective systems. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk. Prereq: perm.

CE **WS435 Hazardous Waste Engineering** (3 cr). WSU C E 418. Same as EnvE 435.

CE **441 Reinforced Concrete Design** (3 cr). Strength design method in accordance with latest ACI code. Two lec and one 2-hr lab a wk. Prereq: CE 342.

CE **WS442 Prestressed Concrete Design** (3 cr). WSU C E 434/534.

CE **WS443 Design of Timber Structures** (3 cr). WSU C E 436.

CE **444 Steel Design** (3 cr). Structural steel design using latest AISC specifications. Two lec and one 2-hr lab a wk. Prereq: CE 342.

CE **ID&WS-J445/ID&WS-J545 Matrix Structural Analysis** (3 cr). WSU C E 531. Formulation of the analysis of trusses, beams, and frames using the stiffness method of matrix structural analysis; development of element properties, coordinate transformations, and global analysis theory; special topics such as initial loads, member and joint constraints, modification procedures. Special project demonstrating mature understanding of materials reqd for grad cr. Prereq: CE 342 or perm.

CE **460 Geotechnical Engineering Design** (3 cr). Same as GeoE 462. Applications of soil mechanics in design of earth retaining structures, shallow and deep foundations, embankments, slopes, and excavations. Prereq: CE 360.

CE **WS461 Foundations** (3 cr). WSU C E 435.

CE **473 Highway Design** (3 cr). Planning, geometrics, location, and design of urban and rural highway systems. Two lec and one 3-hr lab a wk. Prereq: CE 372, CE 360 or perm.

CE **ID474 Traffic Systems Design** (3 cr). WSU C E 474. Analysis and design of network traffic systems; system evaluation using computer optimization and simulation; development and testing of alternative system design. Two lec and one 3-hr lab a wk; field data collection and field site visits. Prereq: CE 372 or perm.

CE **ID475 Pavement Design and Evaluation** (3 cr). WSU C E 473. Pavement design processes; stress-strain analysis in multi-layer elastic system; materials selection and characterization methods; traffic loads, design methods for flexible and rigid pavements;

performance evaluation of existing pavements; condition survey and ratings; introduction to pavement maintenance and rehabilitation techniques. Prereq: CE 357 or equiv, or perm.

CE **482 Project Engineering** (3 cr). Modern project engineering techniques for planning, scheduling, and controlling typical engineering and construction projects; linear programming and other optimization techniques as applied to resource allocation; microcomputer applications are emphasized and appropriate software used throughout the course. Prereq: Stat 251, 301, or equiv, and senior standing or perm.

CE **ID484 Engineering Law and Contracts** (2 cr). WSU C E 462. Contract law and application to engineering services agreements and construction contracts; specifications, agency, torts, professional liability, and alternate dispute resolution. Prereq: Sr standing in engineering.

CE **491 Civil Engineering Professional Seminar** (1 cr). Employment and technical topics; preparation and presentation of professional paper. Course to be taken in last semester before graduation. Graded P/F. Prereq: Sr standing in civil engineering.

CE **492** (s) **Professional Society Project** (1 cr, max 2). May be used as a technical elective by CE majors. Active participation in a student project sponsored by one of the professional engineering societies; students schedule, manage, and complete the project, make written and oral presentations, and present the project results to the sponsoring professional engineering society. Prereq: Jr standing in CE and perm.

CE **493-494 Senior Design Project** (1-3 cr, max 4 cr). One or two semester comprehensive civil engineering design project. Requires integration of skills acquired in civil engineering elective courses, written reports, and oral presentations. Prereq: Sr standing in CE and perm.

CE **499** (s) **Directed Study** (cr arr). Prereq: perm.

CE **500 Master's Research and Thesis** (cr arr).

CE **501** (s) **Seminar** (cr arr). Conferences and reports on current developments.

CE **502** (s) **Directed Study** (cr arr). Prereq: perm.

CE **503** (s) **Workshop** (cr arr). Prereq: perm.

CE **504** (s) **Special Topics** (cr arr). Prereq: perm.

CE **ID&WS510 Advanced Mechanics of Materials** (3 cr). See ME 539.

CE **519 Fluid Transients** (3 cr). Same as ME 519. Development of concepts and modeling techniques for unsteady flow of liquid and gas in piping systems; extensive computer programming used to develop tools for analysis, design, and control of transients. Prereq: Math 310 and Engr 335. (Alt/yrs)

CE **520 Fluid Dynamics** (3 cr). See ME J420/J520.

CE **521 Sedimentation Engineering** (3 cr). Intro to river morphology and channel responses; fluvial processes of erosion, entrainment, transportation, and deposition of sediment. Prereq: CE 428 or perm.

CE **ID522 Hydraulic Design** (3 cr). See CE J422/J522.

CE **ID&WS523 Water Resources Systems** (3 cr). WSU C E 561. Concepts in water development; coordination of development of other natural resources; systems approach and optimization techniques. Prereq: perm.

CE **ID&WS524 Water Resources Planning** (3 cr). WSU C E 562. Use of water resources; provision for domestic water supply, power, flood control, navigation, irrigation, and recreation; design and feasibility problems; guest lecturers. Prereq: perm.

CE **ID&WS525 Unsteady Flow in Open Channels** (3 cr). WSU C E 550. Formulation of Saint-Venant equations, interpretations by the method of characteristics; solution by numerical methods, flood routing and field applications using available codes. Prereq: CE 428 or BAE 458. (Alt/yrs)

CE **528 Stochastic Hydrology** (3 cr). Analyses and evaluation of hydrologic data and time series; application of stochastic models to data generation and record extension (daily and storm precipitation, monthly and annual streamflows); regression and autoregression analyses; extensive computer applications for data analysis and synthesis. Prereq: CE 325, introductory statistics course.

CE **529 Natural Channel Flow** (3 cr). See BAE 555.

CE **ID&WS531 Environmental Engineering Unit Operations** (3 cr). WSU C E 541. Same as EnvE 531. Analysis and design of physical and chemical operations of water and waste treatment; flow models, sedimentation, flocculation, filtration, and water conditioning. Prereq: perm.

CE **ID&WS532 Design of Water and Wastewater Systems II** (3 cr). See CE J432/J532.

CE **533 Water Quality Management** (3 cr). See CE J433/J533.

CE **ID&WS534 Environmental Engineering Unit Processes** (3 cr). WSU C E 542. Same as EnvE 534. Aeration system design, biological oxidations, growth kinetics, process design of suspended growth and fixed film aerobic and anaerobic systems, biological nutrient removal, land treatment systems. Prereq: CE 431 or perm.

CE **WS537 Aquatic Systems Restoration** (2-3 cr). WSU C E 585.

CE **540 Continuum Mechanics** (3 cr). See ME 540.

CE **ID&WS541 Reliability of Engineering Systems** (3 cr). WSU C E 531. Same as ME 583. Fundamentals of reliability theory, system reliability analysis including common-mode failures and fault tree and event tree analysis, time-dependent reliability including testing and maintenance, propagation of uncertainty, human reliability analysis, practical applications in component and system design throughout the semester. Prereq: perm.

CE **ID&WS542 Advanced Design of Structures** (3 cr). WSU C E 537. Composite action, hybrid sections, plate girders, curved girders, fatigue design, splices and connections, loads, load combinations, load distribution, computer modeling and analysis. One 1-day field trip. Prereq: CE 444 or perm.

CE **ID&WS543 Dynamics of Structures** (3 cr). WSU C E 512. Behavior of structures under impact, impulse, and seismic loads. Prereq: CE 441, 444, and Math 310. (Alt/yrs)

CE **ID&WS545 Matrix Structural Analysis** (3 cr). See CE J445/J545.

CE **ID&WS546 Finite Element Analysis** (3 cr). Same as ME 549. WSU C E 532. Formulation of theory from basic consideration of mechanics; applications to structural engineering, solid mechanics, soil and rock mechanics; fluid flow. Prereq: ME 341 or CE 342.

CE **ID&WS547 Advanced Reinforced Concrete** (3 cr). WSU C E 533. Composite design; slab design; limit state design; footings; retaining walls; deep beams; brackets and corbels; torsion; seismic design; shear walls. Prereq: CE 441.

CE **548 Elasticity** (3 cr). See ME 548.

CE **WS551 (s) Industrial Waste Problems** (3 cr). WSU C E 545.

CE **WS552 Air Pollution Abatement and Administration** (2 cr). WSU C E 573.

CE **WS553 Engineering Aspects of Environmental Chemistry** (2-4 cr). WSU C E 583.

CE **556 Properties of Pavement Materials** (3 cr). Design of asphalt and portland cement concrete mixes; physical and mechanical properties; characterization methods; effects of aggregate and binder constituents; modification and upgrading techniques; laboratory and in-situ evaluation methods; applications of highway and airport materials. Three 1-hr lec a wk and variable number of lab hrs for demonstration. Prereq: CE 357 or equiv, or perm.

CE **557 Mechanical Properties of Elastic and Nonelastic Materials** (3 cr). Procedures for determining stress, strain, and modulus of materials used in construction, and for evaluating their performance with changes of time and frequency, temperature, and moisture under various modes of loading.

CE **ID561 Engineering Properties of Soils** (3 cr). WSU C E 527. Strength, compressibility, volume stability, and permeability of saturated and unsaturated soils, laboratory and field methods of measurement, relations of physical and engineering properties. Prereq: CE 360.

CE **ID562 Advanced Foundation Engineering** (3 cr). WSU C E 528. Consolidation theories, stress and strain distribution, bearing capacity and settlements of shallow and deep foundations, pile group behavior, theory of subgrade reaction, mat foundations, laterally loaded piles. Prereq: CE 360 or perm.

CE **563 Seepage and Earth Dams** (3 cr). See GeoE 535.

CE **ID565 Soil Dynamics** (3 cr). WSU C E 529. Theory of foundation response to dynamic loads, design and analysis of machine foundations, foundation isolation, behavior of soils subjected to dynamic loads, field and laboratory methods for evaluation of dynamic properties, liquefaction, wave equation, analysis of piles.

CE **ID&WS566 Earthquake Engineering** (3 cr). WSU C E 524. Review of geological and seismological factors that influence design; seismic wave propagation; earthquake parameters; probabilistic hazard assessment; dynamic soil properties; response spectra; computer applications; earthquake resistant designs. Prereq: CE 360 or equiv, or perm.

CE **WS567 Soil and Site Improvement** (3 cr). WSU C E 425/525.

CE **ID&WS571 Traffic Flow Theory** (3 cr). WSU C E 501. Introduction to elements of traffic flow theory including principles of traffic stream characteristics, capacity, queueing theory, and shock waves; application of traffic flow theory to freeway and arterial traffic flow problems. Prereq: perm. (Alt/yrs)

CE **ID&WS572 Applied Traffic Operations** (3 cr). WSU C E 501. Application of traffic simulation models to the design and operations of traffic facilities, including intersection, arterials, and freeways; assessment of traffic signal timing strategies and freeway management and control strategies. Prereq: perm. (Alt/yrs)

CE **ID&WS573 Transportation Planning** (3 cr). WSU C E 501. Concepts and methods of transportation planning, including network modeling, travel demand forecasting, and systems evaluation of multi-modal transportation systems. Prereq: perm. (Alt/yrs)

CE **ID&WS574 Public Transportation** (3 cr). WSU C E 501. Concepts and principles of planning and operations of public transportation systems, including bus transit, rail transit, and paratransit modes. Prereq: perm. (Alt/yrs)

CE **ID&WS575 Advanced Pavement Design and Analysis** (3 cr). WSU C E 572. Design of new and rehabilitated asphalt and Portland Cement concrete pavements, mechanistic-empirical design procedures, performance models, deflection-based structural analysis, remaining life analysis and overlay design, environmental effect, long-term pavement performance (LTPP), and introduction to research topics in pavement engineering. Prereq: CE 475 or equiv, or perm.

CE **577 Pavement Management and Rehabilitation** (3 cr). Overview of Pavement Management Systems; PMS project and network levels; serviceability concepts and performance models; PMS data needs; rehabilitation and maintenance strategies; life cycle cost analysis; implementation of PMS in design, construction, maintenance, and research; examples of working PMS; maintenance and rehabilitation of asphalt and concrete pavements. Prereq: CE J475/J575 or equiv, or perm.

CE **589 Water Resources Seminar** (1 cr). See Intr 589.

CE **597** (s) **Practicum** (cr arr). Prereq: perm.

CE **598** (s) **Internship** (cr arr). Prereq: perm.

CE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

CE **600 Doctoral Research and Dissertation** (cr arr).

# Communication

**Christopher P. Campbell, Director, School of Communication (201 Shoup Hall 83844-1072; phone 208/885-6458).**

Note: See School of Communication requirements in part 5 for eligibility requirements for registration in upper-division courses.

Comm **101 Fundamentals of Public Speaking** (2 cr). *May be used as core credit in J-3-a.* Skills and techniques of effective speaking.

Comm **111 Introduction to Communication Studies** (3 cr). Introduction to historical and intellectual development of the primary subfields within communication; perspectives on interrelationships among the subfields of interpersonal, small group, visual, organizational, and mass communication; exploration of institutional character and cultural implications of each subfield; build competence as critical consumers of communication content.

Comm **112 Media and Society** (3 cr). Overview of mass communication: history and structure of media organizations; the political, economic and social context of media; legal and ethical considerations; visual and media literacy; cultural approaches to mass communication research.

Comm **121 Media Writing** (3 cr). Basic principles of writing for print, broadcast and on-line media. Two 2-hr lec-labs a wk. Prereq: Engl 102 and ability to type.

Comm **200** (s) **Seminar** (cr arr). Prereq: perm.

Comm **203** (s) **Workshop** (cr arr). May be graded P/F. Prereq: perm.

Comm **204** (s) **Special Topics** (cr arr). Prereq: perm.

Comm **225 News Writing** (3 cr). Writing news for print, broadcast and on-line media. Introduction to newsroom structures and processes, news judgment and decision making. Prereq: Comm 121.

Comm **233 Interpersonal Communication** (3 cr). Communication concepts and skills applied to relationship management; communication process, listening, self-disclosure, perception, conflict.

Comm **235 Organizational Communication** (3 cr). Philosophy, methods, and designs for studying communication system of a complex organization.

Comm **252 Principles of Public Relations** (3 cr). Understanding public relations programs, functions and techniques; projects related to students' interest. Prereq: Comm 121.

Comm **265 Principles of Advertising** (3 cr) (C). Survey of advertising practices and the role of advertising in American society, including effects on consumers; regulation, media and advertising as a creative process.

Comm **270 Digital Audio Production and Announcing** (3 cr). Basic introduction to audio principles and techniques, with emphasis on digital technologies for radio, TV, film and music recording. Prereq: Comm 121.

Comm **275 Introduction to Video/Television & Digital Media Production** (3 cr). Introduction to art and craft of various broadcast media-related production environments. Emphasis on aesthetics of story telling through visual imagery, sound, and associated processes of production covering scripting, directing and editing. Work with both analogue and digital equipment for field and studio assignments.

Comm **276 Intermediate Video/Television & Digital Media Production** (3 cr). Involves students in more professional broadcasting work with an emphasis on digital media production. Including: creative scriptwriting, camera techniques, composition, lighting, sound, graphic animation and non-linear editing. Students will primarily use digital-based equipment to produce TV news features, documentary, narrative cinema and commercial advertising. Prereq: Comm 275.

Comm **281 Understanding Photography** (3 cr). Basic skills of camera operation; emphasis on image design and creative techniques. Lecture topics include exposure, lenses, composition, filters and films. 35mm adjustable camera required, plus additional costs for photographic materials. Two lec and one 3-hr recitation a wk.

Comm **288 Introduction to Film Studies** (3 cr). Introduction to the study of film; survey of film aesthetics, form, theory, style, systems and analysis; a foundation course for upper-division film courses--no previous film or photography experience required. Two lec, one discussion period, and one film showing period a wk.

Comm **291 Web Communication** (3 cr). Overview of the history, architecture and dissemination of information on the web, examining standards of clarity and efficiency with special emphasis on audience needs and the principles of communication theory.

Comm **299** (s) **Directed Study** (cr arr). Prereq: perm.

Comm **310 Communication Inquiry** (3 cr). Exploration of relationships between communication theory, methodology and practice. Students will investigate the nature of inquiry and how to ask relevant questions about the communication process.

Comm **320 Information Gathering and Reporting** (3 cr). Skills in identifying and reporting credible information for print, broadcast and on-line news media.

Comm **322 Broadcast News** (3 cr) (Comm 374). Production and writing techniques for news on radio, television and the Internet. Prereq: Comm 121 and 225, or perm.

Comm **324 News Editing and Production** (3 cr) (Comm 424). News selection, evaluation, editing, and display; pagination and design for print and on-line media. Prereq: Comm 121 and 225, or perm.

Comm **331 Conflict Management** (3 cr). Principles of effective conflict management in various settings; emphasis on styles of conflict, power, goals, strategies and intervention techniques.

Comm **332 Communication and the Small Group** (3 cr). Problem-solving methods; performing as a group leader or as a group member; small group behavior.

Comm **335 Intercultural Communication** (3 cr). Survey of current theories and research on intercultural communication; development of critical thinking skills in regard to intercultural interaction and communication styles.

Comm **347 Persuasion** (3 cr). Theory and practice of effective persuasive techniques. Prereq: Comm 101.

Comm **350 Public Relations Writing and Production** (3 cr). Public relations writing, publication and design processes for print, broadcast and online media. Prereq: Comm 121.

Comm **354 Publications Editing** (3 cr). Design and production of magazines, periodicals, brochures.

Comm **361 Advertising Creativity** (3 cr) (Comm 360 and 362). Advertising creative process in print, broadcast and on-line media, including copywriting, production processes and techniques. Prereq: Comm 265.

Comm **364 Advertising Media Planning** (3 cr) (C). Advertising media planning for all media, both broadcast and print; includes interpretation of ratings and market data, media strategies and concepts, and specific buying process in each advertising medium. Prereq: Comm 265.

Comm **375 Broadcast Television and Studio Program Production** (3 cr). Development and breakdown of broadcast TV and series proposals. Live studio production of news and TV magazine formatted programming aired on UITV regional cable Channel 8. Studio/field production, writing, producing, directing and editing of story feature packages primarily on digital based equipment. Perform all aspects of studio operation and techniques. Prereq: Comm 275 and 276.

Comm **382 History of Photography** (3 cr). History and development of photography in its various forms; photography as a creative art form and a reflection of society; selected slide lecs. Prereq: Comm 281 or perm.

Comm **384 History of American Film** (3 cr). History and development of U.S. film industry; film as an art form; film as a reflection of society; selected genres and directors. Prereq: Comm 288, Intr 126, or perm.

Comm **386 Documentary Film/Television** (3 cr). Development of nonfiction film, TV, photography; documentary style and form; documentary's power to communicate; issues raised by documentary; noted practitioners and theorists of documentary.

Comm **387 Digital Imaging** (3 cr). Computer imaging with emphasis on visual problem solving and design; development of professional techniques with industry standard software. Four hrs of lec/lab and discussion a wk.

Comm **400** (s) **Seminar** (cr arr). Prereq: perm.

Comm **401** (s) **Practicum in Communication** (1 cr, max 2). Graded P/F. Prereq: perm.

Comm **403** (s) **Workshop** (cr arr). May be graded P/F. Prereq: perm.

Comm **404** (s) **Special Topics** (cr arr). Prereq: perm.

Comm **422 Science Communication** (3 cr). Methods of reporting on science and technology; the rhetoric of communication about science in the mass media. Prereq: Comm 225 or perm. (Alt/yrs)

Comm **425 Feature Article Writing** (3 cr). Writing human interest stories, editorials, reviews and columns. Prereq: Comm 121 or perm.

Comm **427 Public Affairs Reporting** (3 cr) (Comm 323). Problems and practice in reporting the courts, government, politics, other public issues. Prereq: Comm 121 and 222, or perm.

Comm **430 Perspectives in Film** (3 cr). See Engl 430.

Comm **431 Professional Presentation Techniques** (3 cr). Presentations designed to assist students in professional fields in making presentations to professional and lay audiences.

Comm **432 Gender and Communication** (3 cr). The nature of interpersonal communication and gender; identification, interpretation, and analyses of theories that offer explanations of gender and culture in interpersonal interactions. Prereq: Comm 233 or perm. (Alt/yrs)

Comm **433 Organizational Communication Theory and Research** (3 cr). Overview of current theory and research in organizational communication; interpretive and critical perspectives on organizational culture, organizational change, organization and environment relationships, management systems and power relationships. Prereq: Comm 235.

Comm **ID440 Media and the Canadian Experience** (3 cr). WSU Com 403. Comparison and contrast of American and Canadian Media systems; American-Canadian media coverage of issues of cross-boarder importance; Canadian citizens use of media.

Comm **442 Communication Law and Ethics** (3 cr) (Comm 441 and 448). Examination of First Amendment law and the ethical responsibilities of communication professionals.

Comm **443 Media Management** (3 cr). Management principles as they apply to electronic and print media; emphasis on personnel management, budgeting, programming, sales, marketing and promotion, legal constraints, new technologies and strategic planning.

Comm **444 Communication and Public Opinion** (3 cr). Role of communication in the formation of public opinion; overview of survey methodology and interpretation.

Comm **445 History of Mass Communication** (3 cr). Growth and development of mass media in the U.S.

Comm **446 History of Communication Studies** (3 cr). Survey of the history of the field of communication studies with a special focus on communication campaigns.

Comm **449 Theory in Communication** (3 cr). Interdisciplinary approach to understanding the process of communication.

Comm **452 Public Relations Campaign Design** (3 cr). Examination of public relations programs; practice in developing and executing campaigns with emphasis on problem/issue identification, design of campaign elements, presentations skills and equipment. Prereq: Comm 252.

Comm **455 Communication Research Methods** (3 cr) (Comm 450 and 451). Aims and methods of quantitative and qualitative communication research.

Comm **458 Public Relations Case Studies and Issues Management** (3 cr). Examination of actual and created public relations case studies; reasons for their success or failure examined and evaluated. Prereq: Comm 252.

Comm **466 Advertising Campaign Strategy** (3 cr). Advanced advertising strategies in creative approaches and media usage; current ad campaigns and development of a complete advertising campaign for a client. Prereq: Comm 361, 364, and 431; and Art 121 or 225.

Comm **468 The Advertising Agency** (3 cr). Functioning of an advertising agency, including management, accounting, creative and media buying systems, government regulation, account management and creative strategies in the marketplace. Field trips. Prereq: Comm 466 or perm.

Comm **471 Senior Seminar in Communication** (3 cr). Capstone course for senior communication majors. Addresses contemporary issues from the multiple perspectives of the discipline, including visual, oral and written communication.

Comm **475 Advanced Video/Television & Digital Media Thesis Production** (3 cr). Thesis production and program content development for television, documentary and narrative cinema. Combines advanced techniques, aesthetics, and craft of the overall broadcast production disciplines. Projects will be produced primarily within the digital environment. Final thesis work will be showcased at annual film/video festival. Prereq: Comm 275, 276, and 375.

Comm **476 Advanced Broadcast News** (3 cr). Advanced techniques in writing and production of news for radio and television. One lec and one lab a wk. Prereq: Comm 374.

Comm **478 Broadcast/Cable/Web Programming** (3 cr). Introduction to program development, theory and scheduling, with emphasis on the regulations and strategies involved in radio, television, and cable programming at both the national and local levels. Prereq: Comm 111 and 121.

Comm **484 Experiences in Visual Thinking** (3 cr) (Comm 284). Expansion and strengthening of creative potential through right brain thinking experiences: seeing, drawing and imagining; solution of creative problems by applying learned principles and visual thinking strategies.

Comm **489 Critical Issues in Visual Communication** (3 cr). Examination of major theoretical approaches to visual media (photography, film and television); impact of visual images on society; communicative and aesthetic functions of visual images; ethical concerns and visual media.

Comm **490 International Communication** (3 cr). Analysis of channels and media for international communication; cross-cultural mass media.

Comm **491 Communication and Aging** (3 cr). A communication perspective is adopted to examine the aging process and the ability of individuals to successfully adapt to aging; issues addressed are theory, research and factors associated with communication and aging.

Comm **498** (s) **Internship** (0-3 cr, max 3). Supervised experience in professional communication. Graded P/F. Prereq: perm of School of Communication Director.

Comm **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Computer Engineering

**Joseph J. Feeley, Chair, Dept. of Electrical and Computer Engineering (214 Buchanan Engr. Lab. 83844-1023; phone 208/885-6554).**

CoE **101 Foundations of Electrical and Computer Engineering** (2 cr). See EE 101.

CoE **243 Digital Logic** (3 cr). See EE 243.

CoE **244 Logic Circuit Lab** (1 cr). See EE 244.

CoE **245 Computer Organization and Architecture** (4 cr). See CS 245.

CoE **341 Digital Systems Engineering** (3 cr). See EE 440.

CoE **361 Microcontrollers** (4 cr). See EE 443.

CoE **J413/513 Concurrent Systems** (3 cr). See CS J413/J513.

CoE **J420/J520 Data Communication Systems** (3 cr). See CS J420/J520.

CoE **421 Data Communication Lab** (1 cr). See CS 421.

CoE **445 Introduction to VLSI Design** (3 cr). See EE 445.

CoE **480-481 Computer Systems Design Projects** (3 cr). Application of formal software and hardware design techniques, hardware/software interface considerations, project management, economics, reliability, professional ethics, and patents; projects require a combination of hardware and software system design, working model, and oral and written report. Two lec a wk; significant lab work reqd. Prereq for CoE 480: EE 316, EE 317, CoE 341, and Sr standing in computer engineering; or perm. Prereq for CoE 481: EE 350, CoE 480, and CS 381; or perm.

CoE **500 Master's Research and Thesis** (cr arr). Prereq: perm.

CoE **513 Concurrent Systems** (3 cr). See CS J413/J513.

CoE **520 Data Communication Systems** (3 cr). See CS J420/J520.

CoE **548 Supercomputing** (3 cr). See EE 548.

# Computer Science

**Robert Hiromoto, Chair, Dept. of Computer Science (235 Janssen Engr. Bldg. 83844-1010; phone 208/885-6589).**

CS **101 Introduction to Computer Science** (3 cr). *May be used as core credit in J-3-c.* Survey of computer science and topics of importance to computer scientists; includes topics such as the nature of problems, unsolvability, hardware, human factors, security, social, ethical, and legal issues; exposure to practical aspects of computer networks. Three lectures and one recitation per week. Prereq: two yrs of high school algebra.

CS **102 Computer Science Orientation** (1 cr). Introduction to the computer science profession and curriculum; fields of study available; curriculum planning; academic and professional ethics; introduction to available computing platforms and practice using them. Prereq or coreq: CS 112 or 113.

CS **112 Introduction to Problem Solving and Programming** (3 cr). *May be used as core credit in J-3-c.* Intro to fundamental problem solving techniques using the computer; use of a programming language, structured programming concepts; use of fundamental data types, including arrays and structures; basic concepts of computer organization, editing, and program execution; programming lab in which the student solves problems using C++. Prereq: Math 107 or sufficiently high ACT, SAT, or Math Placement Test score to qualify for Math 143.

CS **113 Program Design and Algorithms** (3 cr). Further problem-solving and design methods used in computer science; problem definition and analysis; preliminary design methods, module analysis and refinement methods, cohesion, coupling, top down design; internal and external program documentation; intro to algorithm analysis, cost and complexity concepts; discussion and comparison of several well-known algorithms for searching, sorting, text, and numeric processing. Lab work reqd. Prereq: CS 112 or equiv.

CS **127** (s) **Programming Language** (1-3 cr, max arr). Introduction to computer programming in a selected language. Prereq: perm.

CS **204** (s) **Special Topics** (cr arr). Prereq: perm.

CS **213 Data Structures** (3 cr). Intro to abstract data types, linear lists, linked lists, stacks, queues, graphs, and trees; methods for implementing, and algorithms for manipulating these types; dynamic memory methods; additional searching and sorting algorithms that result from using these data types; sequential file processing; application of these concepts in the lab to provide further experience in the program design process. Prereq: CS 113 and Math 176.

CS **214 Background Study in Data Structures** (1 cr). Not applicable toward any UI undergraduate degree; valid only for removal of CS 213 deficiency for graduate students who do not have B.S.C.S. See CS 213 for course description. Graded P/F based on comprehensive examination at completion of course.

CS **245 Computer Organization and Architecture** (4 cr). Same as CoE 245. Register and processor level design of computer systems including the ALU and control unit; assemblers, linkage editors, loaders; evolution and classification of computer architectures; memory hierarchy, I/O interfaces; techniques for analyzing system performance. Prereq: CS 113 and CoE 243.

CS **299** (s) **Directed Study** (cr arr). Prereq: perm.

CS **307 History of Calculating and Computing** (3 cr). Open to all students. Exploration of numerical problems that created demands for better calculating devices, from the abacus to the supercomputer. Prereq: CS 101 or 112 and upper-division standing.

CS **310 Computing Languages** (3 cr). Major features of good programming languages, with primary emphasis on language features and their role in writing good software; programming language design alternatives; various types of languages, including procedure, data-flow, functional, and object-oriented languages. Prereq: CS 213.

CS **ID&WS324 Computer Graphics** (3 cr). WSU Cpt S 442. Use of the computer to define, store, manipulate, and display 2-D and 3-D objects; 2-D curvefitting and 3-D surface development. Prereq: CS 112 and Math 160 or 170 and trig or perm.

CS **341 Computer Operating Systems** (4 cr). Analysis and design of methods used by operating systems to perform typical system services; design and implementation of file and directory systems; I/O methods, including programmed, interrupt-driven, and DMA; CPU scheduling; memory management techniques and implementations; concurrent programming; deadlocks; protection mechanisms; distributed systems; lab component focuses on implementation of several designs and algorithms discussed in lec. Three lec and one lab a wk. Prereq: CS 213 and 245.

CS **360 Database Systems** (3 cr). Study of database design and implementation; comparison of basic models (entity-relationship, hierarchical, network, relational); study of query languages; discussion of issues of integrity, security, dependencies, and normal forms. Prereq: CS 213 or perm.

CS **371 Expert Systems** (3 cr). Theory and practice of knowledge engineering; knowledge acquisition, representation, coding, testing; individual project reqd.

CS **381 Software Engineering** (3 cr). Current topics in development of software systems; software life cycle model, requirements definition, design, verification and validation, and project management techniques. Prereq: perm.

CS **386 Derivational Programming** (3 cr). Introduction of a practical approach based on methodically developing programs from their specifications; focus on developing reliable programs with attention to real issues. Prereq: CS 213.

CS **398** (s) **Computer Science Cooperative Internship** (1-3 cr, max 3). Supervised internship in professional computer science settings, integrating academic study with work experience; requires formal plan of activities before co-op assignment and final written report evaluated by on-campus faculty members. Graded P/F. Prereq: perm.

CS **401 Contemporary Issues in Computer Science** (1 cr). Ethical, legal, and intellectual property issues; current research topics; and other issues of importance to the professional computer scientist. Graded P/F. Prereq: sr standing in CS.

CS **404** (s) **Special Topics** (cr arr). Prereq: perm.

CS **J413/J513 Concurrent Systems** (3 cr). Same as CoE J413/J513. Issues of parallel computer architecture considering a hardware/software approach; topics include convergence of parallel architectures, fundamental design issues, parallel programs, programming for performance, workload-driven evaluation, shared memory multiprocessors, snoopy-based multiprocessor design, scalable multiprocessors, cache coherence, hardware software tradeoffs, interconnection network design, latency tolerance, and future directions of concurrent systems. Prereq: CS 341.

CS **414 Object-Oriented Design** (3 cr). Concepts and techniques used in object-oriented design (OOD) and object-oriented programming (OOP); current topics in OO discussed; concepts illustrated with the design and implementation of both individual and group projects. Prereq: CS 341 or 310.

CS **J420/J520 Data Communication Systems** (3 cr). Same as CoE J420/J520. Concept and terminology of data communications, equipment, protocols (including ISO/OSI and TCP/IP), architectures; transmission alternatives, regulatory issues and network management. Additional projects/assignments reqd for grad cr. See CS 421 for optional lab course.

CS **421 Data Communication Lab** (1 cr). Same as CoE 421. Hands-on experience with data communication systems using workstations and protocol analyzers; analysis of protocols, network diagnostics, and network system management. Graded P/F. Coreq: CS 420 or equiv.

CS **ID-J423/J523 Network Security** (3 cr). WSU Cpt S 425. Practical topics in network security; policy and mechanism, malicious code; intrusion detection, prevention, response; cryptographic techniques for privacy and integrity; emphasis on tradeoffs between risk of misuse, cost of prevention, and societal issues; concepts implemented in programming assignments. Additional projects/assignments reqd for grad cr. Prereq: CS 341, knowledge of C or C++.

CS **J435/J535 Foundations of Modern Programming Methods** (3 cr). The seminal papers in computer science that form the foundation of today's programming methodology; detail analysis of papers on theory of programming, design techniques, coding considerations, and new methods like visual programming and object-oriented design; major influences on how and why we build programs today. Additional projects/assignments reqd for grad cr. Prereq: junior standing, CS 213, CS 245, knowledge of at least two other programming languages.

CS **J442/J542 Computer Security Concepts** (3 cr). Cryptographic systems, coding and decoding of messages; network, database, and operating system security issues, capability and access-control mechanisms; current trends and research in mandatory and discretionary security policies. Additional projects/assignments reqd for grad cr. Prereq: CS 341, Stat 301.

CS **ID&WS445 Systems Program Design** (4 cr). WSU Cpt S 452. Algorithms used by the following system software: assemblers, macro-processors, interpreters, and compilers; compiler design options and code optimization; all concepts implemented in major programming assignments. Prereq: CS 245, 310.

CS **J449/J549 Fault-Tolerant Systems** (3 cr). Same as EE J449/J549. Design, modeling, analysis and integration of hardware and software to achieve dependable computing systems employing on-line fault tolerance; theory and fundamental concepts of designing reliable systems; analytical evaluation techniques, faults and advances in ultra-reliable distributed systems, fault-tolerant software systems; case studies include the space Shuttle, Airbus, and Boeing fly-by-wire primary flight computers as well as systems in reliable data bases and financial markets. Additional projects and assignments reqd for grad cr. Prereq: CS 245 or EE 441 or perm.

CS **J461/J561 Advanced Database Systems** (3 cr). Theory, analysis, and implementation of database architecture, security, performance, query optimization, recovery and concurrency control, reliability, integrity, commit protocols, distributed processing, deadlock detection and management. Additional projects/assignments reqd for grad cr. Prereq: CS 360.

CS **J470/J570 Artificial Intelligence** (3 cr). Concepts and techniques involved in artificial intelligence, Lisp, goal-directed searching, history trees, inductive and deductive reasoning, natural language processing, and learning. Extra term paper reqd for cr in 570. Prereq: CS 213 or perm.

CS **J472/J572 Evolutionary Computation** (3 cr). Solving computation problems by “growing” solutions; simulates natural evolution using analogues of mutation, crossover, and other generic transformations on representations of potential solutions; standard EC techniques such as genetic algorithms and evolutionary programming, mathematical explanations of why they work, and a survey of some applications; the focus is on solving real-world problems using projects. Graduate-level research and possible paper or presentation required for grad cr. Prereq: CS 213.

CS **480 Design--Individual Project** (4 cr). Formal development techniques applied to definition, design, coding, testing, and documentation of a computer programming project; each student completes an individual project. Two lec a wk; significant lab work reqd. Prereq: Engl 317 and sr standing in CS.

CS **481 Design--Group Project** (4 cr). Application of formal design techniques to development of a large computer science project performed by students working in teams. Significant lab work reqd. Prereq: CS 480.

CS **J482/J582 Software Project Management** (3 cr). Techniques for planning, organizing, scheduling, and controlling complex software system development and support projects. Additional projects/assignments reqd for grad cr. Prereq: CS 381 or 480 or perm.

CS **J484/J584 Software Quality Assurance** (3 cr). Actions necessary to provide confidence that a software product conforms to established technical requirements; strategies for implementation and management of SQA, product reviews, test plans and procedures, audits, configuration management, and reliability assessment; concepts of software quality. Additional projects/assignments reqd for grad cr. Prereq: CS 381.

CS **J485/J585 Software Process Management** (3 cr). Systematic software development from management perspective that centers on constituent tasks and their interrelationships; evaluation of software development process maturity and means to improve process maturity. Additional projects/assignments reqd for grad cr. Prereq: CS 381.

CS **ID&WS-J486/ID&WS-J586 Software Specification** (3 cr). WSU Cpt S 464/564. Formal specification and analysis of software using a formal specification language, and case studies of designs expressed in a formal specification language. Additional projects/assignments reqd for grad cr. Prereq: perm.

CS **490 Theory of Computation** (3 cr). See Math 485.

CS **495 Analysis of Algorithms** (3 cr). See Math 475.

CS **J496/J596 Computational Complexity** (3 cr). Development of a theory of complexity to categorize which problems are harder than others, in what sense, and why; an approach that is abstract and mathematical, not algorithmic; topics include models of computation, complexity classes, reductions, and relativizations. Additional readings or project reqd for grad cr. Prereq: CS 490 or Math 485.

CS **499** (s) **Directed Study** (cr arr). Prereq: perm.

CS **500 Master's Research and Thesis** (cr arr). Prereq: perm.

CS **501** (s) **Seminar** (cr arr). Prereq: perm.

CS **502** (s) **Directed Study** (cr arr). Prereq: perm.

CS **504** (s) **Special Topics** (cr arr). Prereq: perm.

CS **507 Fundamentals of Research** (3 cr). See For 510.

CS **ID&WS510 Theory of Programming Languages** (3 cr). WSU Cpt S 518. Advanced topics in programming language theory including formal syntax, formal semantics, denotational semantics, and type theory; principles of programming language design are stressed; not a comparative language class. Prereq: CS 310 or equiv; coreq: CS 490 or equiv.

CS **513 Concurrent Systems** (3 cr). See CS J413/J513.

CS **520 Data Communication Systems** (3 cr). See CS J420/J520.

CS **521 Computer Network Design** (3 cr). Design of optimal and near-optimal network topologies; capacity and flow assignment; performance analysis of networks; routing, flow control, and congestion algorithms. Prereq: CS J420/J520.

CS **523 Network Security** (3 cr). See CS J423/J523.

CS **535 Foundations of Modern Programming Methods** (3 cr). See CS J435/J535.

CS **541 Operating Systems** (3 cr). Principles of contemporary operating systems for network and distributed computer systems; sequential processes, scheduling, process synchronization, device management, file systems, memory management, and protection and security. Prereq: CS 341 or perm.

CS **542 Computer Security Concepts** (3 cr). See CS J442/J542.

CS **549 Fault/Tolerant Systems** (3 cr). See CS J449/J549.

CS **551 Advanced Computer Architecture** (3 cr). Same as EE 541. Principles and alternatives in instruction set design; processor implementation techniques, pipelining, parallel processors, memory hierarchy, and input/output; measurement of performance and cost/performance trade-off. Prereq: CS 245 or equiv and Stat 301 or equiv.

CS **561 Data Base Management Systems** (3 cr). See CS J461/J561.

CS **570 Artificial Intelligence** (3 cr). See CS J470/J570.

CS **572 Evolutionary Computation** (3 cr). See CS J472/J572.

CS **580 Graduate Project** (1-6 cr, max 6). Application of formal design and documentation techniques to the development of computer programming project; project selected in consultation with student's major professor. Prereq: CS 381, 480 or perm.

CS **ID581 Software Engineering Analysis** (3 cr). WSU Cpt S 521. Intro to research in software engineering; strong emphasis on application of quantitative techniques in the software life cycle; students will develop a command of current software engineering literature; exploration of techniques of mathematical modeling and solutions to software engineering problems.

CS **582 Software Project Management** (3 cr). See CS J482/J582.

CS **ID583 Software Engineering Measurement** (3 cr). WSU Cpt S 523. Measurement methodology is the foundation of the emerging discipline of software engineering; software products are constructed by people engaged in a software development process in a development environment; focus on learning to measure the attributes of these four measurement domains; examples of software measurement and the applications of these measurements; using these techniques as the basis for the design of software engineering experiments; application of the scientific method in evaluation of programming methods and models; extension of the measurement concepts into the area of statistical modeling. Prereq: CS 581.

CS **584 Software Quality Assurance** (3 cr). See CS J484/J584.

CS **585 Software Process Management** (3 cr). See CS J485/J585.

CS **586 Software Specification** (3 cr). See CS J486/J586.

CS **590 Theory of Computation** (3 cr). Various models of computation, such as Turing machines, recursive functions, and register machines; relative strengths and weaknesses of these models, with particular attention to uncomputability results; computational complexity as a natural outcome of restrictions to these models. Prereq: CS 490.

CS **596 Computational Complexity** (3 cr). See CS J496/J596.

CS **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. (There is a limit on the number of credits in 599 that can be included on a study plan.) Prereq: perm.

CS **600 Doctoral Research and Dissertation** (cr arr).

# CORE

**William L. Voxman, Core Coordinator (104 Admin. Bldg. 83844-3160; phone 885-5220; wvoxman@uidaho.edu).**

NOTE: See regulation J-3 for core curriculum requirements and the list of courses that may be used for core credit.

CORE **101** (s) **Core Discovery** (4 cr). Open to freshmen only. May be used as core credit in *J-3-d* or *J-3-e*, depending on section. First semester of a year-long interdisciplinary, thematically based course, intended to introduce students beginning their university experience to a variety of humanities and social science disciplines and perspectives on topics of broad interest; all themes/sections emphasize discussion and frequent student-faculty and student-student interactions; each includes attention to issues of critical thinking, diversity, and methods of inquiry. Students continue in the spring in CORE 102 (same subject and instructor). (Fall only)

CORE **102** (s) **Core Discovery** (3 cr). Open to freshmen only. May be used as core credit in *J-3-d* or *J-3-e*, depending on section. Second semester of a year-long interdisciplinary, thematically based course, intended to introduce students beginning their university experience to a variety of humanities and social science disciplines and perspectives on topics of broad interest; all themes/sections emphasize discussion and frequent student-faculty and student-student interactions; each includes attention to issues of critical thinking, diversity, and methods of inquiry. Prereq: CORE 101 (same subject and instructor). (Spring only)

CORE **201** (s) **Integrated Science** (3 or 4 cr). *May be used as core credit in J-3-b.* An interdisciplinary, thematically based course intended to provide the student with the skills to analyze and evaluate scientific claims and to make intelligent scientific and social decisions; among the topics addressed are the impact of science on society and the ethical dilemmas and moral consequences of scientific research; all themes/sections emphasize discussion, collaborative work, and the conduct of science, though not necessarily in a formal lab setting.

# Counseling and School Psychology

**James A. Gregson, Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83843-3083; phone 208/885-6556).**

CASP **200** (s) **Seminar** (cr arr). Prereq: perm.

CASP **203** (s) **Workshop** (cr arr). Prereq: perm.

CASP **204** (s) **Special Topics** (cr arr). Prereq: perm.

CASP **299** (s) **Directed Study** (cr arr). Prereq: perm.

CASP **400** (s) **Seminar** (cr arr). Prereq: perm.

CASP **403** (s) **Workshop** (cr arr). Prereq: perm.

CASP **404** (s) **Special Topics** (cr arr). Prereq: perm.

CASP **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program. Additional projects/assignments reqd for grad cr.

CASP **J407/J507 Orientation to Counseling** (2 cr) (C, 507 only). Exploratory course for students considering entering the counseling profession. Focus on counselor's role and function, the counselor as a person, ethical considerations, and other contemporary issues; involves small group work and role playing; assessment of knowledge and skills acquired. Successful completion of course is one of the criteria for final admission in the master's degree program in counseling and human services. Additional projects/assignments reqd for grad cr. Prereq: perm.

CASP **464 Career Guidance** (3 cr). See PTE 464.

CASP **499** (s) **Directed Study** (cr arr). Prereq: perm.

CASP **500 Master's Research and Thesis** (cr arr).

CASP **501** (s) **Seminar** (cr arr). Prereq: perm.

CASP **502** (s) **Directed Study** (cr arr). Prereq: perm.

CASP **503** (s) **Workshop** (cr arr). Prereq: perm.

CASP **504** (s) **Special Topics** (cr arr). Prereq: perm.

CASP **505** (s) **Professional Development** (cr arr). See CASP J405/J505.

CASP **507 Orientation to Counseling** (2 cr) (C). See CASP J407/J507.

CASP **509 Psychometrics** (1 cr). Basic psychometric principles for developing and evaluating instruments of psychological and educational assessment; includes validity, reliability, correlation, scaling, standardization, and test development.

CASP **510 Individual Appraisal I** (2 cr). Theoretical background and practical skills needed to administer, score, and interpret individual assessment procedures in counseling and human services. Broad exposure to techniques and instruments of psychological and educational assessment is provided. Prereq: CASP 509 or equivalent and perm.

CASP **511 Individual Appraisal II** (2 cr). Overview of a broad range of appraisal/assessment methods: record reviews, diagnostic interviewing, observation, student participation techniques, informal tests and standardized tests; completion of comprehensive assessment on a student in accordance with prescribed procedures. Prereq: CASP 510 and perm.

CASP **512 Theories and Applications of Counseling I** (2 cr). Overview of the skilled-helper counseling model and the person-centered counseling approach; skill mastery through microskills role-playing activities. Prereq: perm.

**CASP 513 Theories and Applications of Counseling II** (2 cr). Overview of prevailing theories of counseling; study of predominant approaches, with emphasis on existential/gestalt and cognitive behavioral approaches; didactic and experiential activities to model application of techniques. Prereq: CASP 512.

CASP **514 Career Counseling and Development** (3 cr). Career development theories, occupational and educational information and systems, career and leisure counseling, life-style and career decision-making, and career development program planning, resources, and evaluation. Prereq: perm.

CASP **515 Counseling in the Schools** (2 cr). Analysis of developmental approach to school counseling through in-depth study of its potential for application in educational settings; procedures to plan, design, implement, and evaluate developmental school programs are emphasized. Prereq: perm.

CASP **516 School Interventions** (2 cr). Exploration of school system dynamics, the change process, and in-depth orientation to problem-specific preventative and interventive measures. Prereq: CASP 515.

CASP **517 Group Counseling** (2 cr). Group theory and practice in counseling, including appropriate uses of group, member selection, planning and implementing groups, members' roles, rights, and responsibilities, group leader characteristics and skills, curative factors in group, ethical considerations, problems unique to group, client dynamics in group, and stages of group development. Prereq: CASP 512 and 513, or CASP 512 and perm; coreq: CASP 518.

CASP **518 Group Counseling Laboratory** (1 cr). Participation in a personal development group to promote group counseling skills and awareness of the self as an instrument in effective group leadership; participation as group members as well as observing and serving as part of a reflecting team for the group. Graded P/F. Two hrs of lab a wk. Prereq: CASP 512 and 513, or CASP 512 and perm.

CASP **519 Social and Cultural Foundations in Counseling** (2 cr). Introduction to a theory of multicultural counseling, human development and problems within a cultural context, and current social issues relevant to counselors. Emphasis will be placed on students' own cultural heritage and the implication it has for their work with diverse groups.

CASP **520 Approaches to Counseling with Families** (2 cr). Introduction to the application of general systems theory to families within the context of the larger culture; overview of systems approaches to family treatment, multicultural aspects of family treatment, ethics involved in consultation with families, and referral to appropriate services. Prereq: CASP 512, 513, 517, and 519.

CASP **528 Diagnosis and Case Conceptualization in Counseling and Human Services** (3 cr). Review of adult and child psychopathology with an emphasis on diagnosis and case conceptualization; basic issues in classification and diagnosis; training in differential diagnosis utilizing the DSM-IV diagnostic system.

CASP **529 Psychopharmacology** (2 cr). Examination of medications that are commonly prescribed for psychiatric disabilities; descriptions of medication effects, interaction, and side effects.

CASP **530 Foundations of Rehabilitation and Community Counseling** (2 cr) (C). Orientation to the history, philosophy, legislation, and delivery of services of rehabilitation and community counseling.

CASP **531 Psycho-social Aspects of Disability** (3 cr). Social and psychological aspects of disability; attitudinal and environmental problems associated with specific disabilities and their implications for intervention, approaches to rehabilitation across all disabilities, and differences between typical and pathological behavior of people with disabilities.

CASP **532 Medical/Physical Aspects of Rehabilitation** (2 cr) (C). Medical terminology, physical characteristics, and medical information needed to serve people with disabilities; medical and health services used to accommodate and remediate medical and physical disabilities.

CASP **533 Principles of Rehabilitation, Community, and School Counseling** (2 cr). Survey of human service agencies including their history, purpose, and intent, and eligibility requirements; description of community and rehabilitation services populations and personnel.

CASP **534 Rehabilitation and Community Case Management** (2 cr). Making effective case and case load management decisions including intake interviewing; medical, psychological, and vocational evaluation; job placement and rehabilitation/treatment planning; preparation in writing case histories and notes.

CASP **535 Vocational Placement and Assistive Technology** (3 cr). Environmental and attitudinal barriers to employment experienced by people with disabilities; legislation and current assistive technologies examined as a means of addressing barriers to employment; methods and techniques in employer contact, job analysis, job development, job placement, and transitional planning to overcome those barriers; integrating knowledge about the consumer and labor markets to facilitate an appropriate vocational placement and retention. Prereq: CASP 533 or perm.

CASP **536 Professional Issues, Ethics, and Law in Counseling and School Psychology** (2 cr). Analytical process of ethical decision-making as it applies to casework, organizational policy, and law; examination of relevant professional and legal issues.

CASP **540 Addictions Counseling** (2 cr). Knowledge and abilities of assessment, treatment, and relapse prevention of addictions; focus on interventions appropriate for people with addiction problems.

CASP **541 Counseling in the Community** (3 cr). This course will provide graduate students in Counseling and School Psychology with a conceptual and practical overview of mental health issues and services in community counseling. Crisis intervention, management, and prevention will be addressed.

CASP **550 Introduction to School Psychology** (2 cr). Introduction to the profession of school psychology: history, present role and function, alternative delivery systems, professional preparation, provision of services, credentialing, and the future of school psychology.

CASP **551 Assessment of Cognitive Functioning** (2 cr). Overview of theories of intelligence, commonly used assessment instruments/procedures, measurement and statistical concepts, test interpretations and reporting practices, assessment of diverse populations, and ethical/legal issues. Develop competence in administering, scoring, interpreting, and reporting results of intelligence tests commonly used in school settings. Prereq: CASP 510 and perm.

CASP **560 Advanced Theory and Practice of Career Development** (3 cr). Same as ACTE 560. Builds upon the foundation of personality psychology, genetic research, and modern neuroscience in understanding the complex process of career decision-making.

CASP **563 Consultation in Counseling and School Psychology** (2 cr). Constructs and processes that influence human, organizational, and systems development through consultation. Prereq: placement in counseling and school psychology specialist or doctoral programs, or perm; Coreq: CASP 597.

CASP **570 Research and Evaluation in Counseling Psychology** (2 cr). Review of research and evaluation in counseling psychology; application to personal doctoral study. Prereq: graduate course in research methodology.

CASP **571 Counseling Psychology Education** (2 cr). Curriculum, procedures, and best practices in counseling psychology. Coreq: CASP 598.

CASP **572 Advanced Theories in Counseling Psychology** (3 cr). Analysis of contemporary counseling theories; process, procedures, and techniques of major theories; emphasis on original sources. Prereq: CASP 512, 513, 517, and perm.

CASP **573 Counseling Psychology Supervision** (2 cr). Purpose, procedures, and best practices in counseling psychology supervision. Coreq: CASP 598.

CASP **578 Ethics and Legal Issues in Counseling Psychology** (1 cr). Advanced considerations in application of analytical process of ethical decision-making applied to casework, organization policy, and law.

CASP **579 Lifestyle Diversity** (1 cr). Exploration of differences in aspirations for social status, work climate, education, mobility, and financial security.

CASP **597** (s) **Practicum** (cr arr). Closely supervised experience as a counselor or school psychologist in a professional setting; 50 hrs of experience are required for each credit. Graded P/F. Prereq: CASP 510, 512, PTE 464, and perm.

CASP **598** (s) **Internship** (cr arr). For advanced grad students. Currently offered in counselor education, counselor supervision, college counseling, college student personnel services, school special services, school psychology, school counseling, agency counseling, and private counseling practice. Graded P/F. Prereq: perm.

CASP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

CASP **600 Doctoral Research and Dissertation** (cr arr).

# Dance

**Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).**

Dan **100 Dance in Society** (3 cr). *May be used as core credit in J-3-d.* Introduction to dance as an art form, as entertainment, and as a lifelong activity; emphasis on appreciation and understanding of movement as an expression of human values, genres and historical styles, factors affecting change, current issues.

Dan **101 First Year/Transfer Student Orientation** (1 cr). Introductory course to introduce new students to dance at the university level. Open to dance majors and minors only.

Dan **105** (s) **Dance** (1 cr, max arr). Same as PEB 105. Modern, folk, ballet, jazz, tap, square, and social dancing. Two hrs a wk. Graded P/F.

Dan **112 Recreational Dance Forms** (2 cr). Folk, square, social dance skills, cultural influences; basic teaching methods; dance in education and recreation.

Dan **200** (s) **Seminar** (cr arr). Prereq: perm.

Dan **203** (s) **Workshop** (cr arr). Prereq: perm.

Dan **204** (s) **Special Topics** (cr arr). Prereq: perm.

Dan **210 Dance Theatre** (2-3 cr, max 12). Open to all students. Stagecraft; dance styles including modern, jazz, ballet, tap. Two hrs of company class a wk plus additional rehearsals leading to performance. Prereq: dance experience.

Dan **J212/J412/J512 Dance Theatre Choreography** (1 cr, max 6). Independent work on intermediate and advanced levels of choreography leading to mainstage performance with Dance Theatre. Develop and refine practical skills as well as personal approaches. Additional projects for graduate credit include a research paper and oral presentation of a choreographic analysis of a minimum of two works by major choreographers in the appropriate genre; demonstrated evidence of a personal choreographic voice; demonstrated ability to integrate choreographic principles at an advance level. Prereq: perm.

Dan **216** (s) **Techniques** (cr arr). For majors and minors. Theory and techniques in ballet, modern, jazz, and performance. Two to three hrs a wk in a basic instructional curriculum. Prereq: perm of division.

Dan **270 Technical Competence I** (1-10 cr, max 10). Technical competence is gained from experience in an area of concentration related to the bachelor's degree in dance. Grades for successful completion of Dan 270, 370, and 470 will be transcripted as P (pass) normally during the student's last semester and completion of all degree requirements. Prereq: 9 credits in residence in dance major.

Dan **299** (s) **Directed Study** (cr arr). Prereq: perm.

Dan **J320/J510 Labanotation** (3 cr). Intro to methods of notating movement; notating and reading basic elements of Motif Writing and Labanotation. Additional projects/assignments required for graduate credit include a research paper and oral presentation to class comparing early and contemporary notation systems; developing a series of lessons applying notation concepts to technique classes--these lessons must demonstrate the graduate student's comprehension of the symbolic language system of Labanotation. Prereq: perm. (Alt/yrs)

Dan **J321/J511 Dance Pedagogy** (3 cr). Learning styles, teaching styles, and behaviors as they affect teaching and learning in dance; science of dance training. Additional projects/assignments required for graduate credit include observation and analysis of dance teacher behavior in a minimum of two genres and two skills levels; demonstrated ability to integrate pedagogical principles in teaching a minimum of two 50-minute technique classes on the university level. Prereq: perm. (Alt/yrs)

Dan **J325/J525 Dance Production** (3 cr). Organization and production of dance concerts; program planning, marketing, management, costume design, staging the production. Additional projects/assignments required for graduate credit include working a minimum of 90 hours as production assistant to the director of a mainstage dance theatre production; documenting the process and producing a detailed production notebook (manual) for that position. (Alt/yrs)

Dan **360 Children's Dance** (2 cr) (Dan 220). Basic principles and techniques for teaching dance to elementary school age children and integrating dance into the curriculum; emphasis on content, methods, and resource material. One lec and two labs a wk. (Alt/yrs)

Dan **370 Technical Competence II** (1-10 cr, max 10). See Dan 270. Prereq: completion of junior year in dance major.

Dan **J383/J583 Dance Composition** (1 cr, max 6). Improvisation and choreography using basic composition elements; advanced exploration of choreographic procedures and performance. Additional projects/assignments required for graduate credit include a written discussion and oral presentation based upon video analysis and research in dance history and criticism of a minimum of four major choreographic works. Prereq: Dan 105 or 216 (Modern I/II) and perm.

Dan **400** (s) **Seminar** (cr arr). Prereq: perm.

Dan **403** (s) **Workshop** (cr arr). Prereq: perm.

Dan **404** (s) **Special Topics** (cr arr). Prereq: perm.

Dan **410 Pre-professional Dance Theatre** (2-3 cr, max 12). Advanced work in choreography and performance. Two hrs of company class a wk plus additional rehearsals leading to performance. Prereq: Dan 210, 325, 383.

Dan **412 Dance Theatre Choreography** (1 cr, max 6). See Dan J212/J412/J512.

Dan **415 Dance Lab** (1-3 cr, max 3). Studio techniques in dance movement skills for the theatre. Prereq: perm.

Dan **416** (s) **Advanced Technique** (cr arr). For majors and minors. Advanced techniques and theory in ballet, modern, jazz, and performance. Two to three hrs a wk in preprofessional technique classes. Prereq: perm of division.

Dan **J420/J520 Dance Accompaniment** (3 cr). Development of the pre-professional dancer's ability to use sound, particularly music, appropriately and creatively as an accompaniment for dance teaching, choreography, and performing. Additional projects/assignments reqd for grad cr include an additional 15 musical annotations and a research paper and presentation on the collaborative relationship of the choreographer and composer. Prereq: perm. (Alt/yrs)

Dan **J421/J521 Dance History** (3 cr). Development of theatrical, social, and educational dance from lineage-based to contemporary styles. Students registering for graduate credit are required to complete an additional research paper make two substantial presentations synthesizing overriding concepts within a historical concept. Prereq: Dan 100 or perm. (Alt/yrs)

Dan **433 Practicum: Dance Teaching** (7 or 14 cr). Supervised teaching in grades 1-12; two-thirds of experience in secondary schools. Graded P/F. Prereq: ED 314, special methods in subject area, cumulative GPA of 2.50, and perm of dept. (Submit application via director of Center for Dance to director of clinical experiences in teacher education by December 1 of school yr before enrolling.)

Dan **470 Technical Competence III** (1-12 cr, max 12). See Dan 270. Prereq: enrollment in the final semester of the degree program in dance major.

Dan **490 Senior Project** (3 cr). Open-ended projects representing the capstone of the student's work, consistent with the chosen emphasis within the dance degree (e.g., concerts of original work, a major choreographic work, major performance, teaching or research projects). Prereq: senior standing.

Dan **495** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Dan **499** (s) **Directed Study** (cr arr). Prereq: perm.

Dan **510 Labanotation** (3 cr). See Dan J320/J510.

Dan **511 Dance Pedagogy** (3 cr). See Dan J321/J511.

Dan **512 Dance Theatre Choreography** (1 cr, max 6). See Dan J212/J412/J512.

Dan **520 Dance Accompaniment** (3 cr). See Dan J420/J520.

Dan **521 Dance History** (3 cr). See Dan J421/J521.

Dan **523 Issues in Dance Pedagogy** (3 cr). Current research, trends, and issues affecting effective dance teaching methods and teaching behavior, curriculum development, professional preparation.

Dan **525 Dance Production** (3 cr). See Dan J325/J525.

Dan **583 Dance Composition** (1 cr, max 6). See Dan J383/J583.

# Economics

**Joseph J. Geiger, Head, Dept. of Business (225A J. A. Albertson Bldg. 83844-3161; phone 208/885-6295; e-mail joeg@uidaho.edu).**

**Note:** Enrollment in 300- and 400-level economics courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.4 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

**Note:** The combination of credits for Econ 201, 202, and 272 may not exceed 6 credits.

Econ **201, 202 Principles of Economics** (3 cr) (C). *May be used as core credit in J-3-e.* May be taken in either order. Econ 201: organization and operation of American economy; supply and demand, money and banking, macroeconomic analysis of employment, aggregate output and inflation, public finance, and economic growth. Econ 202: microeconomic principles governing production, price relationships, and income distribution. Econ 201 or 202 carry only two cr after 272. May involve some evening exams.

Econ **204** (s) **Special Topics** (cr arr). Prereq: perm.

Econ **272 Foundations of Economic Analysis** (4 cr). *May be used as core credit in J-3-e.* One-semester introductory course on the principles of economics, covering both micro- and macro- concepts, theory, analysis, and applications. May involve evening exams. Carries no credit after Econ 201 and 202; carries 3 credits after either Econ 201 or 202. Students who have successfully completed this course and later decide to major in economics are required, in consultation with the advisor, to take either Econ 201 or 202 for 2 credits.

Econ **299** (s) **Directed Study** (cr arr).

Econ **316 Economics of Regulation** (3 cr). Analysis of rationale and effects of governmental regulation of marketplace; alternative theories of regulation; theories of market failure and governmental failure; rent seeking and dissipation; public utilities; selected case studies. Prereq: Econ 202 or 272 or perm.

Econ **340 Managerial Economics** (2 cr). This course covers the fundamental economic principles in applied business decisions from both micro and macroeconomic perspectives. Prereq: Econ 201 and 202, or Econ 272. Coreq: Bus 340.

Econ **343 Money and Banking** (3 cr) (C). Influence of money and banking on economic activity; influence of monetary policies to achieve society's economic goals. May include evening exams. Prereq: Econ 201 and 202, or Econ 272.

Econ **345 American Economic Development** (3 cr). Patterns and causes of change in the American economy from colonial times to the present. Prereq: Econ 201 and 202, or Econ 272.

Econ **351 Intermediate Macroeconomic Analysis** (3 cr). Theory of the economy as a whole; national income accounting as a tool of analysis; national output and income, employment, price levels, and growth. May include evening exams. Prereq: Econ 201 and 202, or Econ 272, or perm.

Econ **352 Intermediate Microeconomic Analysis** (3 cr). Theory of the consumer, firm, industry, market, price determination, and allocation of productive resources. Prereq: Econ 201 and 202, or Econ 272 or perm.

Econ **353 Quantitative Economics and Forecasting** (3 cr). Quantitative economic analysis including data collection, modeling, regression analysis, forecasting methods, and time series analysis; computer applications. Prereq: Econ 201 and 202, or Econ 272; and Stat 251, 271, or 301.

Econ **385 Environmental Economics** (3 cr). Theory of externalities and public goods, and application of economic principles to environmental issues. Prereq: Econ 202 or 272 or perm.

Econ **390 Comparative Economic Systems** (3 cr). International comparisons of the origin, development, and attributes of the world's economic systems. Prereq: Econ 201 and 202, or 272.

Econ **398** (s) **Economics Internship Program** (1-3 cr, max 6). Enrollment restricted to economics majors; may not be used to fulfill upper-division economics requirement in any of the three economics degree programs. Graded P/F. Relevant learning experience in business and government. Prereq: perm.

Econ **400** (s) **Seminar** (cr arr). Prereq: perm.

Econ **402** (s) **Workshop** (cr arr). Prereq: perm.

Econ **404** (s) **Special Topics** (cr arr). Prereq: perm.

Econ **407 Public Finance** (3 cr). Role of government in a market economy; public choice and collective decision-making; tax-shifting and incidence; structure and economics of federal taxes; governmental budgeting; public debt; special topics. Prereq: Econ 201 and 202, or Econ 272.

Econ **ID&WS408 State and Local Government Finance** (3 cr). WSU Econ 481. Fiscal federalism and the role of state-local jurisdictions, patterns and determinants of expenditures, structure and economic effects of revenue sources (e.g., sales, income, property taxation), urban fiscal problems, intergovernmental relations, and future trends. Prereq: Econ 201 and 202, or Econ 272.

Econ **J409/J509 Mathematical Economics** (3 cr). See AgEc J409/J509.

Econ **415 Market Structure and Governmental Policy** (3 cr). Analysis of economic behavior under different market structures, e.g., competition, monopoly, oligopoly, monopsony, oligopsony, bilateral monopoly and cartels; theory of contestable markets; antitrust; regulation; selected case studies. Prereq: Econ 202 or 272 or perm.

Econ **ID430 Regional/Urban Economics** (3 cr). WSU Econ 475. Location of economic activity, transportation problems, resource and product distribution methods, urban structure and growth, and related policy issues. Prereq: Econ 201 and 202, or Econ 272.

Econ **441 Labor Economics** (3 cr). Structure and composition of the labor force, wages and employment, human resources, income-maintenance program, and related policy issues. Prereq: Econ 201 and 202, or Econ 272.

Econ **446 International Economics** (3 cr). Analysis of international trade and financial transactions; trade policy; foreign exchange markets; adjustment processes; and international monetary system. May include evening exams. Prereq: Econ 201 and 202, or Econ 272.

Econ **447 Economics of Developing Countries** (3 cr). Same as AgEc 447. Characteristics of underdevelopment; historical perspective; theories and policies; development problems, e.g., poverty and income distribution, population, urban-rural migration and unemployment, agriculture, trade, aid, investment, debt; future prospects. Prereq: Econ 201 and 202, or Econ 272, or perm.

Econ **WS450 The Economics of Health Care** (3 cr). WSU Econ 455.

Econ **453 Econometrics** (3 cr). Same as Stat 433. Use of quantitative techniques to analyze and test economic theories. Prereq: Stat 251 or 271, and Math 160 or 170.

Econ **ID-J455/J555 History of Economic Thought** (3 cr). WSU Econ 402. Development of economic thought; special focus on selected schools, including Greeks, Scholastics, Mercantilists, Physiocrats, Classicals, and neo-Classicals. Additional projects/assignments reqd for grad cr. Prereq: Econ 201 and 202, or Econ 272.

Econ **490 Economic Theory and Policy** (3 cr). A capstone course for economics majors that integrates the theory, quantitative methods, and policy in the undergraduate economics major. Prereq: Econ 351, 352, 353, or perm.

Econ **499** (s) **Directed Study** (cr arr).

Econ **500 Master's Research and Thesis** (cr arr).

Econ **501** (s) **Seminar** (cr arr). Prereq: perm.

Econ **502** (s) **Directed Study** (cr arr). Prereq: perm.

Econ **504** (s) **Special Topics** (cr arr). Prereq: perm.

Econ **507 Research Methodology** (3 cr). See AgEc 507.

Econ **509 Mathematical Economics** (3 cr). See AgEc J409/J509.

Econ **ID&WS510 Advanced Microeconomics** (3 cr). Same as AgEc 510. WSU Ag Ec and Econ 501. Theory of consumer behavior, theory of production behavior, theory of imperfect competition, capital theory, and welfare economics. Prereq or coreq: Econ/AgEc 409/509 or equiv, or perm.

Econ **ID&WS522 Macroeconomic Analysis** (3 cr). Same as AgEc 522. WSU Econ 500. Theory of national income determination and stabilization policy in a monetary economy. Prereq: Econ 351 or perm.

Econ **525 Econometrics** (3 cr). See AgEc 525.

Econ **526 Economics of Business Decisions** (3 cr). Carries no credit after Econ J409/J509 or 510. Applied microeconomics, covering topics such as theory of demand, production, cost, forecasting, capital budgeting. May involve some evening exams. Prereq: perm.

Econ **555 History of Economic Thought** (3 cr). See Econ J455/J555.

Econ **597** (s) **Practicum** (cr arr). Prereq: perm.

Econ **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Education

**Jeanne S. Christiansen, Interim Dean, College of Education (301 Educ. Bldg. 83844-3080; phone 208/885-6772).**

See also Educational Administration, Special Education, and Teacher Education.

ED **101 Orientation to the Teaching Profession** (1 cr). A dual credit course open to high school students. Provides prospective teachers with experiences in the K-12 educational environment and an examination of current trends, school-based practices, and professional responsibilities of school personnel. Fulfills the 100 hr. College of Education public service requirement..

ED **201 Diverse Learners in Schools and Social/Cultural Contexts** (3 cr). Introduction to an inquiry-based model to examine student learning and diversity in relation to the purposes and functions of schools in society; focus on K-12 exposure to diverse learners in a variety of contexts. Thirty hours of field experience required. Prereq: permission of the College of Education (see College of Education section, part 4).

ED **301 Principles of Learning and Development in Education** (3 cr). Theoretical and practical applications of the process of human growth, development, and learning within diverse educational communities. Two lec and 2 hrs of lab a wk. Prereq: ED 201 or perm.

ED **302 Curriculum, Instruction, and Assessment Strategies** (3 cr). Examination of the curriculum development process, knowledge of instructional planning and models of teaching, and an understanding of a wide array of formal, informal, and authentic assessment strategies within and across teaching disciplines; classroom management, exceptionality, philosophical foundations, technology, multi-cultural issues, and instructional inquiry examined within each of these processes. Prereq: ED 301 or perm.

ED **328 Introduction to Educational Technology** (2 cr). Provides individuals with minimal competencies enabling them to set up and use educational technology equipment, software, and related peripherals in K-college classroom settings; includes overview of Macintosh and PC computer hardware and software, videodisc, CD-ROM applications, content-specific hardware and software (e.g., touchscreens and science probeware), and traditional audiovisual display equipment and materials.

ED **401 Professional Role Development** (1-3 cr, max 3). Preservice teachers will examine and evaluate the application of foundational knowledge of teaching, learning, and evaluation; school structures and professional roles; family and community resources and concerns; funding processes; legal and legislative issues; and professional development. Prereq: ED 302 and program recommendation; coreq: enrollment in full-year internship.

ED **430 Practicum: Elementary School Teaching** (7 or 14 cr). Only double program participants enroll for 7 cr. Supervised teaching in elementary schools. Graded P/F. Prereq: ED 302, EDTE 326, 336, 338, 420, admission to teacher education, cumulative GPA of 2.50, and perm of dept; coreq: ED 445. (Submit application to director of clinical experiences in teacher education by December 1 of school yr before enrolling.)

ED **431 Practicum: Secondary School Teaching** (7 or 14 cr). Only double program participants enroll for 7 cr. Supervised teaching in secondary schools. Graded P/F. Prereq: ED 302, EDTE 463, admission to teacher education, cumulative GPA of 2.50, and perm of dept; coreq: ED 445. (Submit application to director of clinical experiences in teacher education by December 1 of school yr before enrolling.)

ED **441 Multimedia** (3 cr). Design, development, and implementation of multimedia based curriculum. Three lec and 2 hrs of lab a wk.

ED **444 Telecommunications** (3 cr). See ITED 444.

ED **445 Proseminar in Teaching** (3 cr). Orientation to practicum, career placement, and entry-level teaching. Coreq: enrollment in senior practicum.

ED **468 Historical and Philosophical Foundations of Education** (3 cr). Events, leaders, ideas, and movements underlying development of education.

ED **531 NBPTS Certification I** (3 cr). An overview of the National Board for Professional Teaching Standards (NBPTS) certification process and a framework for completion of requirements for National Board certification; gaining an understanding of the purpose of NBPTS certification by reviewing the history of the NBPTS certification process; students examine NBPTS standards and portfolio guidelines for their area of certification and receive guidance and consultation in gathering, organizing, and writing documentation required for the NBPTS portfolio.

ED **532 NBPTS Certification II** (3 cr). Continuation of ED 531. Students will complete the requirements for National Board certification, submit a complete portfolio, and prepare to take the assessment center exercises. Prereq: ED 531.

ED **542 Instructional Design** (3 cr). Technology based instructional design, development, evaluation, and revision of curriculum.

ED **543 Distance Education** (3 cr). Planning, implementation, and delivery of educational programming using a variety of distance education technologies.

ED **580 Foundations of Educational Research** (3 cr). Examines various and diverse philosophical/theoretical frameworks, methodologies, strategies/techniques, and design. Explores three paradigms: Positivism/Post positivism, Interpretive/Constructivist and Action/Emancipatory with an emphasis in conducting research in multicultural/diverse settings.

ED **581 Introduction to Quantitative Analysis in Education** (3 cr). An introduction to quantitative research methods in education and the social sciences. The overall goal of the course is to prepare students to understand the process of scientific inquiry, fundamental statistical concepts and procedures of data analysis. The contents will include research design, measurement, and data analysis procedures commonly used in educational research.

ED **582 Introduction to Quantitative Research** (3 cr). Overview of research techniques, emphasizing experimental, quasi-experimental, descriptive, analytical, single subject designs. Special emphasis on interpreting and critically evaluating research articles; planning, analyzing, and writing quantitative research studies. Prereq: graduate standing.

ED **583 Teacher as Researcher** (3 cr). Introduction to classroom research to explore practice, pedagogy, and student learning using qualitative methodology; self-study, action research, collaborative research, and classroom observation.

ED **584 Intermediate Quantitative Analysis in Education** (3 cr). An in-depth analysis of quantitative research methods in social and behavioral sciences. The overall goal of the course is to prepare students to apply quantitative research methodology in education. Topics include understanding applied experimental, quasi-experimental and behavioral designs, survey design, measurement and instrumentation, sampling, item analysis, reliability analysis, and validity assessment. Prereq: ED 581 and ED 582.

ED **586 Advanced Planning and Design of Educational Research** (3 cr). Planning, analyzing, writing, and evaluating research studies appropriate for the dissertation; formulation of conceptual framework relative to analytical process; research designs and control of variables, and interpretation of data; preparation of research presentations and writing for publication. Prereq: Ed 581 and Ed 580 or ED 582 or Ed 583 or Ed 588 or perm.

**ED 587 Advanced Quantitative Analysis in Education** (3 cr). Advanced analysis of quantitative research methods in education and social sciences. The goal of the course is to expose students to multivariate statistics and quantitative research approaches. Topics include multiple correlation/regression, discriminate analysis, exploratory and confirmatory factor analysis, multivariate analysis of variance (MANOVA), multivariate analysis of covariance (MANCOVA), canonical correlation analysis, cluster analysis, log linear model, path analysis and structural equation modeling. Prereq: ED 584 and 586, or perm.

ED **588 Introduction to Qualitative Research** (3 cr). Introduction to rationale, theoretical foundations, design, methods, and ethical issues in conducting qualitative research.

ED **589 Designing and Conducting Qualitative Research** (3 cr). Examination of data collection and analysis process, role of literature critique, survey of computer applications, and ethical issues. Prereq: ED 588 or perm.

ED **590 Qualitative Research: Critiquing Frameworks, Practice, and Application** (3 cr). Advanced qualitative research issues: methodologies, interpretation, formats and perspectives for reporting/publication, application, and ethics. Prereq: ED 589 or perm.

# Educational Administration

**George F. Canney, Interim Director, Div. of Teaching, Learning, and Leadership (404B Educ. Bldg. 83844-3082; phone 208/885-6587).**

EdAd **500 Master's Research and Thesis** (cr arr).

EdAd **501** (s) **Seminar** (cr arr). Prereq: perm.

EdAd **502** (s) **Directed Study** (cr arr). Prereq: perm.

EdAd **504** (s) **Special Topics** (cr arr). Prereq: perm.

EdAd **505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program.

EdAd **WS507 Educational Statistics** (4 cr). WSU EdPsy 508.

EdAd **ID&WS509 Educational Administration** (2-3 cr). WSU Ed Ad 580. Principles and problems of organization and administration of American education, including local, regional, and state systems.

EdAd **510 Strategic Planning for Educational Practitioners** (3 cr). Specifics included in both the discipline and process of strategic planning; team building, internal and external scanning, vision development, generating belief statements and exit outcomes, writing the mission statement, developing strategies to achieve organizational objectives, and establishing action plans.

EdAd **511 Planning and Administering the Curriculum** (3 cr). Same as EDTE 511. Management skills, concepts, and information needed to administer a district-wide curriculum; audits and other evaluations as part of the curriculum or program development cycle; duties and responsibilities of curriculum developers from a standpoint of several possible roles and assignments; criteria and basic concepts for an audit, including essential curriculum management components, alignment, quality control, standards, and data sources.

EdAd **521 Higher Education Administration and Governance** (3 cr). Administration in colleges and universities; history, basic systems of governance in different states, internal organizational structure, finance, student services, faculty, academic programs, affirmative action, and university relations.

EdAd **522 Higher Education Community College Function, Philosophy, and Organization** (3 cr). Overview of development of the community college in the U.S.; mission, role, philosophy, and organization of community colleges including comparative differences of junior colleges, universities, and other higher education institutions; exploration of curriculum and clientele of community colleges from historical, contemporary, and futures perspectives; emphasis on roles of community college administrators.

EdAd **523 Contemporary Issues in Higher Education** (3 cr). Analysis of leading current issues in postsecondary education, including but not restricted to tenure, research/teaching, extended learning-outreach programs, admission, retention, graduation requirements, and student-faculty evaluations.

EdAd **524 History and Philosophy of Higher Education in the U.S.** (3 cr). Exploration of history and philosophy of higher education from its origins to the present day; emphasis on trends and issues that have impacted higher education and contributed to its evolution.

EdAd **525 Higher Education Accounting, Budgeting, and Finance** (3 cr) (EDTE 525). Provides a foundation for exploring the procedures and processes for providing financial support to institutions of higher education; the focus is on public institutions, and information about private institutions will be discussed as appropriate.

EdAd **526 Student Services in Higher Education** (3 cr). Overview of administration of, and issues within, student affairs divisions of colleges and universities; includes organizational structures, philosophical underpinnings, history, relationship to missions of universities and colleges, and relationship to other divisions within universities and colleges.

EdAd **527 Ethics and Law in Higher Education** (3 cr). Comprehensive overview of salient legal issues that have a direct impact on postsecondary education; topics include judicial review process, agency/authority, labor relations/collective bargaining, Affirmative Action, Americans' Disability Act (ADA), accreditation, and the Land Grant university system.

EdAd **533 Multicultural Diversity and Educational Leadership** (3 cr). An introductory graduate-level course in educational administration with an emphasis on the diverse student population that we serve. Its aim is to examine what it means to lead educational organizations in a changing society. Specifically the course focuses on policy, theory and practice, as they relate to diverse school populations. Issues related to multicultural diversity will be drawn from readings as well as personal experiences. The goal of the class is to assist students in developing their own understanding and skills in becoming more effective leaders in organizations that affirm diversity.

EdAd **534 The Principalship** (3 cr). Prepare students for assuming the role of elementary or secondary school principal; emphasis on skills reqd for confidence in the role of principal.

EdAd **ID&WS535 School Finance** (3 cr). WSU Ed Ad 585. Theory and application of financing schools; application to Idaho schools. Prereq: EdAd 509.

EdAd **540 Middle School Curriculum and Program Management** (3 cr). Knowledge base about middle level educational programs, organizational patterns, instructional structures and practices; middle school and its essential characteristics; leadership roles of administrators, teachers, and counselors in middle school; future trends in middle level education.

EdAd **541 School Administrative Technology Applications** (2-3 cr). Potential and practicing school administrators will evaluate and analyze the increased efficiency and effectiveness of utilizing school administrative and instructional technology; knowledge of appropriate and efficient applications of the following: student scheduling; transportation scheduling and routing; school financial, personnel, payroll, accounting, and student records; curriculum management; student assessment analysis; electronic mail for both building and district systems; networking; evaluation of educational software; media center, electronic systems, and other technological applications to administrative functions.

EdAd **586 Advanced School Finance** (3 cr). Economic principles to provide insights into practical matters relating to school finance for principals, teachers, business managers, and other school officials; issues of educational productivity, allocation of resources, efficiency, equity, and liberty; review of basic accounting principles and requirements applying to both district and building levels. Prereq: EdAd 535.

EdAd **587 The Superintendency** (3 cr). Prepare students for assuming the role of superintendent of schools; emphasis on research-based role expectation and practical guidelines for superintendent behavior.

EdAd **588 Critique of Research** (2-3 cr). Research design and methods applicable to the dissertation; dissertation content, format, and style; primarily for educational administration doctoral students who have completed most of their course work; emphasis on review of educational administration doctoral dissertations and peer-reviewed literature. Prereq: Stat 251 or equiv, ED 582 or equiv, enrollment in a doctoral preparation program, or perm.

EdAd **589 Critical Thinking** (2-3 cr). Same as AdEd 589. For individuals curious about the thinking process; a variety of ways of learn about Vertical Thinking and Lateral Thinking; emphasis on practice using Lateral Thinking skills.

EdAd **590 Personnel Supervision and Evaluation** (3 cr). Designed to prepare administrators and others charged with employee supervision and evaluation to help improve school programs through effective supervision and evaluation of non-certificated and certificated personnel; total school improvement through effective hiring practices, staff development, coaching, teaming, providing employee performance feedback, and shared decision making practices; a variety of interpersonal, observational, and evaluative techniques are studied and practiced; emphasis on ongoing quality improvement for all personnel as well as intervention strategies for dealing with low performing staff members.

EdAd **591 Administration of Personnel** (3 cr). Selection, placement, and evaluation of teachers and administrators; salary schedules; school policies; teacher organizations and related matters.

EdAd **592 School-Community Relations** (3 cr). Interpreting the schools to the public, two-way flow of ideas between school and community.

EdAd **593 School Facilities Planning and Maintenance** (3 cr). Planning new school facilities; facility maintenance; legal provisions involving financing; preliminary surveys of need; relationships with architects and contractors.

EdAd **594 Theory in Educational Administration** (3 cr). Theories from psychology, sociology, and cultural points of view applied to school administration; problem solving/decision making; case study approach. Prereq: EdAd 509.

EdAd **596 Collective Negotiations for Teachers** (3 cr). Collective negotiations in public education; recognition of bargaining agent; appropriate unit; unit determination; representation and recognition procedures; scope and process of negotiations; bargaining and impasse procedures; collective agreements; impact of collective negotiations.

EdAd **598** (s) **Internship** (cr arr). Interns assigned for two semesters to practicing administrators in elementary or secondary schools or in district offices or in appropriate offices in higher education. Graded P/F. Prereq: approval of major professor and substantial completion of certification program.

EdAd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm of major professor.

EdAd **600 Doctoral Research and Dissertation** (cr arr).

# Electrical Engineering

**Joseph J. Feeley, Chair, Dept. of Electrical and Computer Engineering (214 Buchanan Engr. Lab. 83844-1023; phone 208/885-6554).**

EE **101 Foundations of Electrical and Computer Engineering** (2 cr). Same as CoE 101. Course is geared toward freshmen EE and CoE students with little or no fundamental electrical/computer engineering knowledge and is highly interactive and hands-on; includes introductory coverage of basic signal characteristics, amplifier applications and design, fundamental circuit analysis, data analysis, digital logic and computer architecture, electromagnetics, semiconductor physics and solar cells, and VLSI, etc.; nontechnical topics relevant to freshmen will also be included. Coreq: Math 143 or higher.

EE **204** (s) **Special Topics** (cr arr). Prereq: perm.

EE **210 Electrical Circuits I** (3 cr). Intro to d.c. and transient electrical circuits; mesh and nodal analysis; dependent sources; circuit theorems; transient analysis with differential equations. Three lec and one recitation a wk. Coreq: Math 310 and Phys 212.

EE **211 Electrical Circuits Lab I** (1 cr). Lab to accompany EE 210. Lab experiments and computer simulations. One 3-hr lab a wk. Coreq: EE 210 and Phys 212.

EE **212 Electrical Circuits II** (4 cr). Continuation of EE 210. Intro to sinusoidal steady state circuits; time and frequency domain analysis; Laplace and Fourier transforms and Fourier series; transfer functions, Bode plots, filters, transformers, polyphase circuits. Four lec and one recitation a wk. Prereq: EE 210, Math 310, and Phys 212.

EE **213 Electrical Circuits Lab II** (1 cr). Lab to accompany EE 212. Continuation of EE 211. Lab experiments and computer simulations. One 3-hr lab a wk. Prereq: EE 211 and Phys 212. Coreq: EE 212.

EE **243 Digital Logic** (3 cr). Same as CoE 243. Number systems, truth tables, logic gates, flip-flops, combinational and synchronous sequential circuits using SSI, MSI, and programmable devices; intro to digital systems and basic microprocessor architecture; certification exam not reqd.

EE **244 Logic Circuit Lab** (1 cr). Same as CoE 244. Open lab to accompany EE 243. Design and construction of combinational and synchronous sequential logic circuits; certification exam not reqd. One 1-hr lec a wk.

EE **292 Sophomore Seminar** (0 cr). Curriculum options, elective courses, preparation for graduate study, professional ethics, and current technical topics. Field trip may be reqd. Graded P/F.

EE **313 Analog and Digital Engineering** (3 cr). Laplace transforms, filters, transducers, grounding, digital logic, A/D and D/A converters, microcontroller systems. Prereq: Engr 240.

EE **315**--see "Background Courses" at the end of this section.

EE **316 Electronics I** (3 cr). Intro to application of electronic devices in electrical networks: diodes, rectifiers, power supplies, and thermal management; bipolar junction transistor principles, biasing, modeling and low-frequency, small signal applications; field effect transistor principles, biasing, modeling, and low-frequency, small-signal applications; operational amplifier fundamentals and applications. Prereq: EE 212 and 213.

EE **317 Electronics I Lab** (1 cr). Lab to accompany or follow EE 316. Prereq or coreq: EE 316.

EE **318 Electronics II** (3 cr). Electronic amplifier frequency response (magnitude and phase); RC coupled amplifiers in cascade; large-signal amplifiers; implications of saturation and cut-off; feed-back amplifiers; intro to analog IC implementation. Prereq: EE 316 and 317.

EE **319 Electronics II Lab** (1 cr). Lab to accompany or follow EE 318. Prereq or coreq: EE 318.

EE **320 Electric Machinery** (5 cr). Theory and application of electric machinery and transformers. Four lec and one 3-hr lab a wk. Prereq: EE 212, 213, and Phys 212.

EE **321**--see "Background Courses" at the end of this section.

EE **330 Electromagnetic Theory** (4 cr). Vector calculus; electrostatics, electrodynamics; electromagnetic waves in isotropic media; Maxwell's equations; boundary value problems. Prereq: Math 275, 310, and Phys 212.

EE **331**--see "Background Courses" at the end of this section.

EE **341**--see "Background Courses" at the end of this section.

EE **350 Signals and Systems Analysis** (4 cr). Continuous and discrete, linear time-invariant systems; Laplace transforms; frequency transforms; Fourier series and transforms, DTFT and DFT; modulation; sampling and reconstruction; Z-transforms and discrete time systems. Prereq: EE 212 and Math 330.

EE **351**--see "Background Courses" at the end of this section.

EE **398 Electrical Engineering Cooperative Internship** (1-3 cr, max arr). Supervised internship in industry in professional engineering settings, integrating academic study with work experience; requires weekly progress reports, a final written report, and a talk/presentation and additional details to be worked out with the faculty supervisor. Cannot be counted as a technical elective toward the B.S.E.E. or B.S.Comp.E. Graded P/F. Prereq: perm.

EE **401 Advanced Circuit Theory** (3 cr). Passive and active electrical networks; frequency response and complex frequency domain analysis, includes pole-zero considerations, root locus, and sensitivity functions. Prereq: EE 212 and 213.

EE **404** (s) **Special Topics** (cr arr). Prereq: perm.

EE **J411/J511 Pulse and Digital Circuits** (3 cr). Electronic switching, timing, and pulse-shaping techniques; logic functions, realization with diodes, transistors, and FETs. Additional projects/assignments reqd for grad cr. Prereq: EE 316 and access to and familiarity with "SPICE" simulation programs.

EE **J412/J512 Active Filters** (3 cr). Second order, Butterworth, Chebychev, Elliptic and Bessel filter functions and active realizations for highpass, lowpass, bandpass, notch and all-pass filters; frequency and impedance scaling; frequency transformations; phase and group delay; filter sensitivity to passive and active elements; introduction to switched capacitor filters. Additional projects/assignments reqd for grad cr. Prereq: EE 318 or 401 or perm.

EE **J413/J513 Communication Circuits** (3 cr). Impedance transforms and matching networks, small-signal high frequency amplifiers, distortion in amplifiers, noise calculations and considerations, sinewave oscillators, mixers and frequency translators, phase-locked loops, and power amplifiers. Additional projects/assignments reqd for grad cr. Prereq: EE 318 or perm.

EE **J414/J514 Analog Integrated Circuit Analysis and Design** (3 cr). Extension of biasing and signal analysis, active current sources and loads, frequency response analysis and compensation techniques and analysis of currently available integrated circuits. Additional projects/assignments reqd for grad cr. Prereq: EE 316. (Alt/yrs)

EE **J415/J515 CMOS Analog Electronics** (3 cr). CMOS technology, modeling and subcircuits plus amplifier, comparator and converter analysis and design. Additional projects/assignments reqd for grad cr. Prereq: EE 318 or perm.

EE **416 Applications of Linear Integrated Circuits** (3 cr). Theory and practical implementation of operational amplifiers, comparators, voltage regulators, and selected integrated circuits. Non-ideal characteristics of op-amps and comparators and circuit considerations, stability and compensation, active filters, non-linear circuits. Prereq: EE 316 or perm.

EE **421 Introduction to Power Systems** (3 cr). Power and energy relationships in power systems, multiphase generators, lines and transformers; power system representation, network solution, and intro to symmetrical components. Prereq: EE 320.

EE **422 Power Systems Analysis** (3 cr). Principles of power flow, fault and stability analysis; computer methods; load flow and econ dispatch. Prereq: EE 421.

EE **ID&WS424 Power Electronic Circuits** (3 cr). WSU E E 486. Characteristics, limitations, and application of solid-state power devices; transistors and thyristors as power switching devices, gating techniques, snubbers; switch-mode power supplies, AC phase control, choppers, rectifiers, inverters, resonant converters, and practical aspects of converter design. Prereq: EE 318 and 320.

EE **425 Power Electronics Lab** (1 cr). Measurement of operating characteristics of power semiconductors; experiments include testing of typical power converter circuits with emphasis on control, gating, protection requirements, and measurement techniques. Prereq or coreq: EE 424.

EE **432 Applications of Electromagnetic Theory** (3 cr). Maxwell's Equations; Poynting's vector and Poynting's Theorem; wave equation with solutions (vector and scalar, homogeneous and inhomogeneous), Helmholz equation; plane waves, reflection and refraction; introduction to classical electrodynamics, radiation from accelerated charges; introduction to antenna theory; transmission lines; waveguides and fiber optics; topics in wave propagation (microwave communication systems, wave propagation through the atmosphere, ionosphere, and magnetosphere, etc.). Prereq: EE 330 or perm.

EE **ID&WS433 Numerical Solutions to Electromagnetic Problems** (3 cr). WSU E E 417.

EE **435 High Frequency Circuits** (3 cr). Transmission line theory; microwave propagation; impedance matching; Smith chart analysis; N-port circuits; S-parameters; coupler, filter, transformer and power divider design. Prereq: EE 330 or perm.

EE **440 Digital Systems Engineering** (3 cr). Same as CoE 341. Design of digital systems using a hardware description language and field-programmable gate arrays; projects emphasize a top-down design process using software tools; topics include datapath optimization, pipelining, static and dynamic memory, technology issues, intra-system communication, and design for testability. Prereq: EE 243, 244, or perm.

EE **441 Computer Organization** (3 cr). Register and processor level design of computer systems including the design of the ALU, CPU controller, memory arrays, virtual memory, cache, I/O interfaces and interrupt structures; techniques for analyzing system performance; organization of computer networks. Prereq: EE 243.

EE **443 Microcontrollers** (4 cr). Same as CoE 361. Introduction to use of embedded microcontrollers and microprocessors; processor architecture; assembly language programming; use of development systems and/or emulators for system testing and debugging; software and hardware considerations of processor interfacing for I/O and memory expansion; programmed and interrupt driven I/O techniques. Three lec and five hrs of lab a wk. Prereq: EE 243 and 244.

EE **445 Introduction to VLSI Design** (3 cr). Same as CoE 445. Principles of design of very large scale integrated circuits; CMOS logic design; transistor sizing and layout methodologies; intro to IC CAD tools. Prereq: EE 316, 243 or perm.

EE **J449/549 Fault-Tolerant Systems** (3 cr). See CS J449/J549.

EE **450 Digital Data Storage Systems** (3 cr). Same as MSE 450. Introduction to digital mass storage systems; the magnetic field and the design of devices for utilizing it for data storage and retrieval; hard and soft magnetic materials; theory of the recording and playback processes; signal processing, modulation, and storage capacity; the electromechanical drive system and servo control. Prereq: EE 330, 350, or perm. (Alt/yrs)

EE **452 Communication Systems** (3 cr). Introduction to modern communication systems; baseband pulse and data communication systems; communication channels and signal impairments; filtering and waveform shaping in the time and frequency domain; carrier-modulation for AM and FM transmission; bandpass digital and analog communication systems; comparison of system performance. Prereq: EE 350. (Alt/yrs)

EE **453 Communication Systems Laboratory** (1 cr). Test and measurement techniques for communication systems and signal processing; experiments in the modulation and demodulation of information bearing signals. Three hrs of lab a wk. Coreq: EE 452.

EE **ID&WS455 Information and Coding Theory** (3 cr). WSU E E 451. Introduction to information theory; information content of messages; entropy and source coding; data compression; channel capacity data translation codes; fundamentals of error correcting codes; linear block and convolutional codes; introduction to trellis-coded modulation. Prereq: Math 330 and Stat 301.

EE **470 Control Systems** (3 cr). Same as ME 481. Analysis and design of feedback control systems using frequency and time domain methods, and computer-aided design tools. Prereq for EE and CoE majors: EE 350. Prereq for ME majors: ME 313.

EE **471 Digital Control Systems** (3 cr). Design of digital control systems; sampling, A/D, and D/A conversion issues; time domain, frequency domain, and state space design methods; use of computer-aided design tools. Three lec a wk and approximately three 3-hr labs. Prereq: EE 470.

EE **476 Digital Filtering** (3 cr). Design methods for recursive and non-recursive filters; frequency domain characteristics; computer-aided design; applications. Prereq: EE 350.

EE **477 Digital Process Control** (3 cr). See ChE 445.

EE **480-481 Senior Design** (3 cr). Computer-aided techniques, economics, marketing, reliability, professional ethics, and patents; projects require original design, working model, and report. Two lec and one 3-hr lab a wk. Prereq for EE 480: EE 243, 244, 318, 319, 320, and Stat 301, or perm. Prereq for EE 481: EE 330, 350, and 480, or perm.

EE **486 Solid-State Electronics** (3 cr). Same as MSE 486. Physical electronics; diode and transistor models; noise mechanics. Prereq: EE 330.

EE **491 Senior Seminar** (0 cr). Technical topics, professional ethics, employment practice, and interviewing. One lec a wk; one 3-6 day field trip may be required. Graded P/F.

EE **499** (s) **Directed Study** (cr arr). Prereq: perm.

EE **500 Master's Research and Thesis** (cr arr).

EE **501** (s) **Seminar** (cr arr). Prereq: perm.

EE **502** (s) **Directed Study** (cr arr). Prereq: perm.

EE **504** (s) **Special Topics** (cr arr). Prereq: perm.

EE **511 Pulse and Digital Circuits** (3 cr). See EE J411/J511.

EE **512 Active Filters** (3 cr). See EE J412/J512.

EE **513 Communication Circuits** (3 cr). See EE J413/J513.

EE **514 Analog Integrated Circuit Analysis and Design** (3 cr). See EE J414/J514.

EE **515 CMOS Analog Electronics** (3 cr). See EE J415/J515.

EE **520 Advanced Electrical Machinery** (3 cr). Synchronous machines and transformers, machine transient and subtransient reactances, excitation and voltage regulation, power curves, transformer connections, impedance, harmonics, and impulse characteristics. Prereq: EE 422.

EE **521 Power System Planning and Resources** (3 cr). Major decision-making and economic factors in electrical energy systems, planning and resource selection; hydroelectric, nuclear, and fossil fuel plants, steady state and transient stability, reliability, voltage levels, economic choices, and future resource potential. Prereq: EE 422 or perm.

EE **522 Induction Machines** (3 cr). Winding theory, reference frame theory, induction machine models, complex vector methods, small signal analysis, induction machine capability, simulation, introduction to variable speed drives. Prereq: EE 350, EE 422, or perm.

EE **523 Symmetrical Components** (3 cr). Concepts of symmetrical components, sequence impedances of devices and lines, circuit equivalents for unbalanced faults, management during faults. Prereq: EE 422.

EE **524 Transients in Power Systems** (3 cr). Voltage transients; overvoltages during faults; recovery voltage characteristics; arc restrikes, switching surges, ferroresonance, and nonlinear phenomena. Prereq: EE 422.

EE **525 Power System Protection and Relaying** (3 cr). Power system faults and applicable relay systems; review of symmetrical components as applied to fault current and consideration of lightning and voltage surge protection. Prereq: EE 422 or perm.

EE **WS526 Protection of Power Systems II** (3 cr). WSU E E 511. Protection of electrical equipment as related to electric power systems with emphasis on digital algorithms. Prereq: EE 525 or perm.

EE **527 Dynamics and Control of AC Drives** (3 cr). Review of machine modeling techniques and simulation methods, principles of power converters for motor drive applications; analytical modeling and dynamic behavior of machine-drive systems; modulation, regulation, and control techniques; simulation of drive systems; case studies. Prereq: EE 320 and 470, or perm.

EE **528 Understanding Power Quality** (3 cr). Electrical fundamentals in the context of power quality; origins and characterization of power quality problems on distribution systems; applications of standards; advanced ground techniques; case study approach to common situations.

EE **529 Utility Applications of Power Electronics** (3 cr). HVdc transmission, static VAr compensators, FACTS devices, Custom Power devices, electrical energy storage systems, power quality, harmonic compensation, and alternative energy supply interfacing. Prereq: EE 422 and 424.

EE **ID&WS530 Advanced Electromagnetic Theory** (3 cr). WSU E E 518. Maxwell's equations, potential theory, wave propagation and scattering, canonical problems, guided wave theory, antenna concepts, boundary value problems. Prereq: EE 432 or perm.

EE **ID&WS533 Antenna Theory** (3 cr). WSU E E 527. Maxwell's equations, reciprocity, equivalence theorems; wire antennas, antenna arrays, aperture antennas; analysis and design techniques; hardware considerations. Prereq: EE 432 or perm.

EE **WS536 Wave Propagation and Scattering** (3 cr). WSU E E 516.

EE **R538 EM Simulation** (3 cr). Computer simulation of electromagnetics using the finite-difference time-domain (FDTD) method; theory of finite-difference simulation, techniques for modeling EM propagation in lossy and dispersive media, boundary conditions for time-domain simulation. Prereq: perm.

EE **539 Advanced Topics in Electromagnetics** (3 cr). Topics include computational and analytical methods, remote sensing, nonlinear optics, guided wave theory, antenna theory. Prereq: EE 530 or perm.

EE **ID540 Asynchronous Circuit Design** (3 cr). WSU E E 554. Design and analysis of asynchronous digital circuits and systems; topics include: delays and hazards, state encoding, speed-independent and delay-insensitive circuits, micropipelines, and signal transition graphs. Prereq: EE 440 or perm.

EE **541 Advanced Computer Architecture** (3 cr). See CS 551.

EE **542 Digital Systems Testing** (3 cr). Fundamentals of testing and design for testability of digital electronic systems at both the module and board level; topics include circuit simulation, fault modeling and simulation, test pattern generation, design for testability, and built-in self-test. Prereq: EE 440 or equiv.

EE **545 VLSI Design** (3 cr). CMOS circuit techniques, analysis, modeling, performance, processing, and scaling; design of CMOS logic, gate arrays, data and signal processors, and memory. Prereq: EE 445.

EE **548 Supercomputing** (3 cr). Same as CoE 548. A perspective of supercomputing from Von Neumann machines to data flow machines; multiprocessors, multicomputers, multivector, multithreaded, superscalar, VLIW, and super pipelined architectures; memory organization; interconnection networks; and parallel languages and compilers. Prereq: computer architecture course and skills in at least one computer language, or perm.

EE **549 Fault-Tolerant Systems** (3 cr). See CS J449/J549.

EE **550 Communication Theory** (3 cr). Advanced topics in modern data communication; data transmission systems; transmission impairments; Nyquist signaling; introduction to information theory; data and channel coding; partial response signaling; maximum

likelihood sequence estimation; error rates; sub-optimum probabilistic detection; equalization; Trellis-coded modulation. Prereq: EE 452 or perm.

EE **554 Information Theory I** (3 cr). Introduction to error control coding; finite field mathematics; polynomial fields; general theory of block codes; syndrome decoding; cyclic codes; encoders and decoders for cyclic codes; generator polynomials; BCH and Reed-Solomon codes; convolutional codes; the Viterbi algorithm; convolutional encoders and decoders; Trellis coded modulation. Prereq: EE 455 or 550 or perm.

EE **555 Information Theory II** (3 cr). Introduction to Shannon Theory; entropy, relative entropy, and mutual information; asymptotic equipartition; entropy rates of stochastic processes; data compression; channel capacity, differential entropy; the Gaussian channel, Lempel-Ziv coding, rate distortion theory. Prereq: EE 550 or 554 or perm.

EE **556 Adaptive Signal Processing** (3 cr). Theory and applications of adaptive signal processing; adaptive linear combiner; performance surfaces; adaptive optimization of performance by gradient search; learning curve behavior, adaptation rates, and misadjustment; applications to filtering, prediction, estimation, control, and neural networks. Prereq: EE 350, Math 330, EE 452 or 476 or 477, or perm.

EE **559 Advanced Topics in Communication Systems** (1-3 cr, max arr). A selection of advanced topics from new research areas in communication systems; a representative selection of topics includes: recent developments in coding and information theory, image compression, cellular and mobile communication systems, magnetic recording, satellite communication systems, spread-spectrum modulation, set-membership theory, clock and carrier recovery methods, and communication channel modeling. Prereq: EE 452 or perm.

EE **ID&WS570 Random Signals** (3 cr). WSU E E 507. Probability, random variables, and random signals in engineering systems; stochastic calculus, stationarity, ergodicity, correlation, and power spectra; propagation of random signals through linear systems; Kalman filter theory and applications. Prereq: EE 350, and Stat 301 or 451, or perm.

EE **571 System Identification** (3 cr). Identification of dynamic system models from test data; methods to be considered include least-squares, prediction error, maximum likelihood, instrumental variables, correlation, and extended Kalman filter; practical applications and computer-based exercises emphasized within a mathematically rigorous framework. Prereq: EE 570 or perm.

EE **ID&WS572 Linear System Theory** (3 cr). WSU E E 501. Same as ME 580. Linear spaces and linear operators; descriptions of dynamic systems; input-output descriptions; state-space concepts; canonical forms; controllability and observability; minimal realizations; application to control and general systems analysis; pole assignment; observers. Prereq: EE 470 or equivalent.

EE **573 Fuzzy Logic Control Systems** (3 cr). See ME 581.

EE **ID&WS574 Optimal Control Theory** (3 cr). WSU E E 502. Same as ME 575. Intro to optimization, parameter optimization, optimization of dynamic systems, optimization of dynamic systems with path constraints, optimal feedback control and dynamic programming, linear quadratic regulators, second variation methods, singular control problems, differential games. Prereq: EE 572 or perm.

EE **575 Advanced Vibrations** (3 cr). See ME 572.

EE **576 Digital Signal Processing** (3 cr). Characteristics of discrete time signals; design of digital filters with applications; advanced digital signal processing algorithms; discrete time spectral analysis; introduction to 2D processing. Prereq: EE 476 or perm.

EE **577** (s) **Advanced Topics in Control Systems** (3 cr). Same as ME 582. Selection of advanced topics from new research areas in control systems; a representative selection of topics would include: adaptive, LOG/LTR, robust, nonlinear, fuzzy, and neural network control methods. Prereq: EE 572 or perm.

EE **578 Neural Network Design** (3 cr). Same as ME 578. Introduction to neural networks and problems that can be solved by their application; introduction of basic neural network architectures; learning rules are developed for training these architectures to perform useful functions; various training techniques employing the learning rules discussed and applied; neural networks used to solve pattern recognition and control system problems. Prereq: perm.

EE **579 Engineering Acoustics** (3 cr). See ME J413/J513.

EE **591 Electrical Engineering Research Colloquium** (0 cr). Graded P/F. Weekly colloquia on topics of general interest in electrical engineering and related fields; speakers will be from UI Electrical Engineering Department, other departments on campus, WSU, the local community, and outside agencies and universities.

EE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

EE **600 Doctoral Research and Dissertation** (cr arr).

# BACKGROUND COURSES

These are not introductory-level courses. They are intended for engineers and scientists whose previous degrees are not in electrical engineering from ABET/EAC-accredited programs, who need to remove deficiencies before beginning graduate studies in electrical engineering.

EE **315 Background Study in Electronics** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of electronics (EE 316) deficiency for grad students who do not have BSEE background. See EE 316 for description. Graded P/F based on comprehensive exam at completion of course; NTU students earn regular letter grades instead of P/F. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

EE **321 Background Study in Electrical Machines** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of electrical machinery (EE 320) deficiency for grad students who do not have BSEE background. See EE 320 for description. Graded P/F based on comprehensive exam at completion of course; NTU students earn regular letter grades instead of P/F. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

EE **331 Background Study in Electromagnetic Theory** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of electromagnetic theory (EE 330) deficiency for grad students who do not have BSEE background. See EE 330 for description. Graded P/F based on comprehensive exam at completion of course; NTU students earn regular letter grades instead of P/F. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

EE **341 Background Study in Digital Computer Fundamentals** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of digital computer fundamentals (EE 243) deficiency for grad students. See EE 243 for description. Graded P/F; NTU students earn regular letter grades instead of P/F.

EE **351 Background Study in Signals and Systems Analysis** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of signals and systems analysis (EE 350) deficiency for grad students who do not have BSEE background. See EE 350 for description. Graded P/F based on comprehensive exam at completion of course; NTU students eearn regular letter grades instead of P/F. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

# Engineering – General

**David E. Thompson, Dean (125 Janssen Engr. Bldg.; 208/885-6479); Howard S. Peavy, Associate Dean; Steven G. Penoncello, Associate Dean.**

Engr **102 Introduction to Engineering** (2 cr). Offered summer only for students in the Summer Start Program. Introduction to engineering disciplines and careers; techniques for analyzing and solving engineering problems. May include field trips and/or projects. Credits may not count toward graduation in some departments.

Engr **ID&WS105 Engineering Graphics** (2 cr). WSU M E 103. Freehand and computer aided drawing in pictorial and orthographic projection; section and auxiliary views; descriptive geometry; graphical presentation of data; scales, dimensioning, and measurements. Two lec and one 2-hr lab a wk.

Engr **ID&WS210 Engineering Statics** (3 cr). WSU C E 211. Principles of statics with engineering applications; addition and resolution of forces, vector algebra, moments and couples, resultants and static equilibrium, equivalent force systems, centroids, center of gravity, free body method of analysis, two and three dimensional equilibrium, trusses, frames, and friction. Prereq: Math 170.

Engr **ID&WS220 Engineering Dynamics** (3 cr). WSU M E 212. Particle and rigid body kinematics and kinetics; rectilinear, curvilinear, and relative motion, equations of motion, work and energy, impulse and momentum, systems of particles, rotation, rotating axes, rigid body analysis, angular momentum, vibration, and time response. Prereq: Engr 210.

Engr **240 Introduction to Electrical Circuits** (3 cr). Not open for credit to electrical engineering majors. Circuit analysis, transient and steady state behavior, resonant systems, system analysis, and power and energy concepts; elementary differential equations will be introduced to solve basic transient problems. Prereq: Math 175, Phys 211.

Engr **ID&WS320 Engineering Thermodynamics and Heat Transfer** (3 cr). WSU M E 301. First and second laws of thermodynamics; thermodynamic processes; thermodynamic properties; flow processes; conversion of heat into work; conduction, convection, radiation, and heat exchangers. Prereq: Engr 210. Coreq: Math 310.

Engr **ID&WS335 Engineering Fluid Mechanics** (3 cr). WSU M E 303. Physical properties of fluids; fluid statics; continuity, energy, momentum relationships; laminar and turbulent flow; boundary layer effects; flow in pipes, open channels, and around objects. Prereq: Engr 210, Math 275.

Engr **ID&WS350 Engineering Mechanics of Materials** (3 cr). WSU C E 215. Elasticity, strength, and modes of failure of engineering materials; theory of stresses and strains for ties, shafts, beams, and columns. Prereq: Engr 210, Math 275. Coreq: Math 310.

Engr **ID&WS360 Engineering Economy** (3 cr). WSU C E 463. Economic analysis and comparison of engineering alternatives. Prereq: Jr standing.

# Engineering Management

**Sunil Sharma, Interim Chair, Dept. of Civil Engineering (104 Buchanan Engr. Lab. 83844-1022; phone 208/885-6782).**

EM **J484/J584 Writing Winning Proposals** (3 cr). Practical course to define the process for developing and submitting proposals. Topics include RFP identification, budgeting, scheduling, proposal writing, proposal reviews, and other topics in the proposal writing process. Guest lecturers will discuss their successful experiences. Students will produce one submission-ready proposal for review of technical writing skills. Additional projects reqd for grad cr.

EM **486 Software-Assisted Project Management** (3 cr) (EM 586). Characteristics and features of project management; procedures and techniques used in identifying software features that are necessary for recording project plans and for reporting project progress; process of selecting project management software that is consistent with the organization's procedures and requirements; evaluation of the modeling capabilities of a system in estimating and scheduling specific case studies of engineering projects. Two lec and 3 hrs of lab a wk. Prereq: CE 482 or PMP Certification .

EM **510 Engineering Management Fundamentals** (3 cr). Fundamental principles of engineering management addressing management theory applied to the engineering environment; management processes and techniques; attitudes that facilitate the leadership role of the engineering manager in an engineering organization; team-taught by business and engineering faculty. Prereq: perm.

EM **511 Legal Process for Engineers** (3 cr). Designed to acquaint engineering management students with the legal process in general and the role of the judiciary in issues encountered by engineering managers. The course is intended to prepare professionals and managers for legal problems and potential liabilities they may encounter in their work as managers. Course employs the Socratic process to explore business organizations, employment law, contract law and other related topics.

EM **582 Advanced Topics in Project Management** (3 cr). Application of project management tools from a management perspective to address the basic nature of all types of projects including public, business, engineering, information systems, etc. Individual and group projects will apply project management tools to case studies and readings on current issues in project management. The course will roughly cover the eight knowledge areas recommended by the Project Management Institute. Prereq: CE 482 or PMP Certification.

EM **584 Writing Winning Proposals** (3 cr). See EM J484/J584**.**

# English

**David S. Barber, Chair, Dept. of English (200 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6156).**

Vertically-related courses in this subject field: Eng 101-102.

PREREQUISITES: Students may enroll for a second-semester course in English without having had the first-semester course, unless it is a stated prerequisite to the second-semester course. Engl 101 and 102 are prerequisite to all upper-division courses. A transfer student who lacks Engl 101 or 102, or both, may take either or both for credit even though he or she has already taken a literature course for which Engl 101 or 102 is prerequisite at UI. Engl 210 or permission of instructor is a prerequisite or corequisite to all literature courses numbered 300 and above.

Engl **090 Developmental Writing** (0 cr). A basic skills course to prepare students for Engl 101. Graded P (pass)/N (repeat)/F (fail).

Engl **101 Introduction to College Writing** (3 cr). Workshop on strategies for generating ideas for writing, for planning and organizing material, and for revising and editing; intended to prepare students for the demands of college writing, focusing on reading critically and incorporating source material. Graded P (pass)/N (repeat)/F (fail). Prereq: Engl 090 or equiv.

Engl **102 College Writing and Rhetoric** (3 cr). Applied principles of expository and argumentative essay writing, including summaries, critiques, and syntheses of texts, and the research essay; emphasis on clear, concise, and vigorous prose. Graded A/B/C/N (repeat)/F. Prereq: Engl 101 or equiv.

Engl **175 Introduction to Literature** (3 cr). Basic course in literary genres (novel, drama, poetry) to provide the general student with the terminology and standard techniques of literary explication.

Engl **201 English Grammar: Key Concepts and Terms** (1 cr). Study of grammar and grammatical concepts; terms and concepts drawn from traditional and transformational grammar; includes practice in sentence diagramming with connections drawn to other grammatical systems. Not an ESL course and not remedial.

Engl **204** (s) **Special Topics** (cr arr). Prereq: perm.

Engl **207** (s) **Persuasive Writing** (3 cr). *May be used as core credit in J-3-a.* Intermediate course in the practices of writing to persuade with special emphasis on current issues and audience awareness; includes research-based writing. Prereq: Engl 102 or equiv.

Engl **208** (s) **Personal and Exploratory Writing** (3 cr). *May be used as core credit in J-3-a.* Intermediate course in the practices of personal and exploratory writing; may include personal narrative and observation, autobiography, or extended reflection; special attention to prose style and voice; includes research-based writing. Prereq: Engl 102 or equiv.

Engl **209** (s) **Inquiry-Based Writing** (3 cr). *May be used as core credit in J-3-a.* Intermediate course in the uses of writing to explore and stake out intellectual positions; special emphasis on the nature of evidence used to develop and support knowledge claims in specific fields. Prereq: Engl 102 or equiv.

Engl **210 Reading - Writing - Texts** (3 cr). Examines methods and assumptions guiding the analysis and interpretation of a variety of literary texts; requires extensive critical reading and writing. Prereq: Engl 102 or equiv.

Engl **257-258 Literature of Western Civilization** (3 cr). *May be used as core credit in J-3-d.* Masterpieces reflecting development of Western thought and culture. Engl 257: Classical Greece to the Renaissance. Engl 258: 17th century to the present.

Engl **291 Creative Writing: Poetry** (3 cr). Intro to techniques of writing poetry.

Engl **292 Creative Writing: Fiction** (3 cr). Intro to techniques of writing fiction.

Engl **293 Creative Writing: Nonfiction** (3 cr). Intro to techniques of writing creative nonfiction.

Engl **295** (s) **Seminar in Literary Studies** (3 cr). Introductory seminar devoted to topics, issues, and methods of inquiry in literary studies; topics vary and will be announced in the *Time Schedule*; requires extensive critical reading and writing. Prereq: Engl 102 or equiv.

Engl **301** (s) **Special Topics** (cr arr). Variable content course covering special topics of contemporary interest. Topics and number of cr will be announced in the *Time Schedule*.

Engl **309 Advanced Prose Writing** (3 cr). Theory and practice in writing prose; many assignments in expression, explanation, and persuasion. Prereq: Engl 102 or equiv.

Engl **313 Business Writing** (3 cr). Principles and practice in writing business correspondence, memoranda, and reports that employ conventions, tone, and style appropriate to the specific discourse situation. Recommended for students with some business background or upper-level standing. Prereq: Engl 102 or equiv; Soph standing.

Engl **316 Environmental Writing** (3 cr). Principles and practice in writing related to communicating information about scientific and environmental issues to public audiences through proposals, correspondence, and essays or reports. Prereq: Engl 102 or equiv; Jr standing or perm.

Engl **317 Technical Writing** (3 cr). *May be used as core credit in J-3-a.* Principles of clear writing related to technical style; problems such as technical description, proposals, formal reports, and technical correspondence. Prereq: Engl 102 or equiv; Jr standing or perm.

Engl **321 The Novel for Nonmajors** (3 cr). Major novels from the 18th century to the present.

Engl **325 Contemporary Literature for Nonmajors** (3 cr). Current poetry, drama, and prose; emphasis on U.S. authors.

Engl **330** (s) **Literature and Film** (3 cr, max 6). Study of both literature and film in considering a time period, theme, culture, or genre. Prereq: Engl 102.

Engl **341-342 Survey of British Literature** (3 cr). Engl 341: Beowulf to Samuel Johnson. Engl 342: Robert Burns to contemporary writers.

Engl **343-344 Survey of American Literature** (3 cr). Engl 343: Colonial beginnings to the Civil War. Engl 344: Post-Civil War to contemporary writers.

Engl **345 Shakespeare** (3 cr). Introductory course; background and study of selected plays representative of Shakespeare's achievement.

Engl **375 The Bible as Literature** (3 cr). Same as RelS 375. Literary qualities of the Bible.

Engl **380 Introduction to U.S. Ethnic Literatures** (3 cr). Emphasis on U.S. minority writers and reading across cultures; selections will vary from semester to semester.

Engl **391 Intermediate Poetry Writing** (3 cr). Intermediate poetry writing workshop; emphasis on workshop approach, development of portfolio, continued reading in poetry. Prereq: Engl 291 or perm.

Engl **392 Intermediate Fiction Writing** (3 cr). Intermediate fiction writing workshop; emphasis on workshop approach, development of portfolio, continued reading in fiction. Prereq: Engl 292 or perm.

Engl **393 Intermediate Nonfiction Writing** (3 cr). Intermediate creative nonfiction; emphasis on workshop approach. Prereq: Engl 293 or perm.

Engl **400** (s) **Seminar** (cr arr). Prereq: perm.

Engl **401 Writing Workshop for Teachers** (2-3 cr). Enrollment limited to juniors or seniors majoring or minoring in English or in secondary or elementary education programs. Students doing a year-long internship in English should enroll for 2 cr; all others should enroll for 3 cr. Develops students' writing abilities in a workshop setting adaptable to K-12 classrooms. Three-credit option includes theory and practice of teaching writing in elementary schools and across the curriculum.

Engl **402 Internship in Tutoring Writing** (3 cr). Theoretical and practical issues involved in tutoring writing; directed experience tutoring students across the disciplines. Graded P/F. Prereq: Engl 102 or equivalent and perm.

Engl **403 Teaching Writing in Secondary Schools** (3 cr). Theory and practice of writing instruction in junior/senior high. Web-based course. Enrollment limited to English and secondary education/English majors concurrently enrolled in EdTE 485. Coreq: EDTE 485.

Engl **404** (s) **Special Topics** (cr arr). Prereq: perm.

Engl **421 Development of the English Novel** (3 cr). Major writers from the beginnings to Scott.

Engl **422 The Nineteenth-Century English Novel** (3 cr). Dickens to Hardy.

Engl **425 Irish Literary Renaissance** (3 cr). Literature of Ireland after 1880, especially Yeats, Joyce, and Synge.

Engl **426 Modern Poetry** (3 cr).

Engl **427 American Fiction, 1914-1945** (3 cr). Fiction by writers such as Cather, Dos Passos, Faulkner, Fitzgerald, Hemingway, and Wright.

Engl **428 British Fiction, 1900-1945** (3 cr). Fiction by such writers as Conrad, Forster, Joyce, Lawrence, and Woolf.

Engl **429 Contemporary Fiction** (3 cr). Fiction since 1945 by writers such as Barth, Bellow, Fowles, Lessing, Morrison, Nabokov, and Pynchon.

Engl **430 Perspectives in Film** (3 cr). Same as Comm 430. Survey of major principles and methods of film criticism as they relate to development of film art from 1890 to the present. Prereq: Intr 126 or Comm 288 or perm.

Engl **433 Chaucer** (3 cr). Intro to Chaucer's poetical works.

Engl **434 Middle English Literature** (3 cr). Middle English literature to 1500, excluding Chaucer and drama.

Engl **436 Advanced Shakespeare** (3 cr). Intensive study of a number of plays grouped according to mode, kind, theme, or the dramatist's dev. Prereq: Engl 345 or perm.

Engl **437 English Drama to 1642** (3 cr). Medieval through renaissance drama, emphasis upon Marlowe, Jonson, Webster.

Engl **441 Introduction to the Study of Language** (3 cr). Same as Anth 441. Surveys of sound patterns, morphological processes and syntactic structures; questions of language acquisition, variation, and history; exercises from a variety of languages, with emphasis on American English.

Engl **442 Introduction to English Syntax** (3 cr). Structure and processes of English syntax; syntax as component of style. Prereq or coreq: Engl 441 or perm.

Engl **443 Language Variation** (3 cr). Geographic and social dialects (e.g., black English), levels of formality and their linguistic consequences; literary use of language variation (as in Dickens and Hardy, Twain and Faulkner); occupational dialects and jargons. Prereq or coreq: Engl 441 or perm.

Engl **445 Literature for Adolescents** (3 cr). Theory and practice of literature study in secondary schools, and appraisal of literature appropriate to the needs, interests, and abilities of adolescents. Prereq: enrollment in a program leading to certification in secondary English or elementary ed (elementary ed majors must have completed 6 cr of literature and EDTE 338; students in secondary ed programs must have completed 9 cr of literature); or perm.

Engl **448 Psycholinguistics** (3 cr). Same as Psyc 448. Survey of cognitive processes of language comprehension, language/speech production, and language acquisition. Prereq: Engl or Anth 441, Psyc 101.

Engl **451 Sixteenth-Century Poetry and Prose** (3 cr). Major authors of the period with emphasis on Spenser.

Engl **452 Milton** (3 cr). Major prose and poetry of Milton.

Engl **453 Seventeenth-Century Poetry and Prose** (3 cr). Major authors excluding Milton; emphasis on Bacon, Browne, Burton, Donne, Herbert, Herrick, Marvell.

Engl **456 Restoration and Eighteenth Century** (3 cr). Neoclassical poetry and prose from Dryden to Johnson.

Engl **465 The Romantic Period** (3 cr). Poetry and prose of the early 19th century; emphasis on Blake, Wordsworth, Coleridge, Shelley, Keats, Byron.

Engl **466 The Victorian Period** (3 cr). Poetry and prose; emphasis on Tennyson, Browning, Arnold, Carlyle, Newman, J. S. Mill.

Engl **470 American Literature to 1830** (3 cr). Colonial period to the early republic; emphasis on Bradford, Bradstreet, Taylor, Edwards, Franklin, Cooper, Irving.

Engl **471 American Literature, 1830-1865** (3 cr). American cultural movements and writers of the mid-nineteenth century.

Engl **473 Literature of the American West** (3 cr). Writings that reflect the growth of the western U.S. from frontier days to the present.

Engl **474 American Literature, 1865-1914** (3 cr). Writers of realistic and naturalistic fiction such as James, Twain, Wharton, and Dreiser, and poets such as Whitman and Dickinson.

Engl **480 Ethnic and Minority Literature** (3 cr). Texts by ethnic and minority writers, primarily but not exclusively American; e.g., Black, Native American, Chicano, Asian American, Black South African.

Engl **481 Women's Literature** (3 cr). Same as FLEN 481. Literature by women; genres, nationalities, and historical periods may vary from semester to semester.

Engl **482** (s) **Major Authors** (3 cr, max arr). Comprehensive study of the works of a single author. See the *Time Schedule* for author.

Engl **483 African American Literature** (3 cr). Major works of African American writers; emphasis on the 20th century.

Engl **484 American Indian Literature** (3 cr). Recent poetry and prose written by and about American Indians.

Engl **491 Advanced Creative Writing: Poetry** (3 cr, max arr). Continuation of Engl 391. Prereq: Engl 391 or perm.

Engl **492 Advanced Creative Writing: Fiction** (3 cr, max arr). Continuation of Engl 392. Prereq: Engl 392 or perm.

Engl **493 Advanced Creative Writing: Nonfiction** (3 cr, max arr). Advanced creative nonfiction; emphasis on workshop approach. Prereq: Engl 393 or perm.

Engl **495 Literary Criticism** (3 cr). From Plato to the present.

Engl **496 History of the English Language** (3 cr). Evolution of the language from Proto-Germanic to American English. Prereq: Engl 441 or perm.

Engl **J498/J598** (s) **Internship** (1-3 cr, max 6). Graded P/F. Supervised experience in professional uses of English. Additional projects/assignments reqd for grad cr. Prereq: perm of director of grad studies or director of undergrad studies, Dept of English.

Engl **499** (s) **Directed Study** (1-3 cr, max 3). Prereq: perm.

Engl **500 Master's Research and Thesis** (cr arr). Graded P/F.

Engl **501** (s) **Seminar** (cr arr). Prereq: perm.

Engl **502** (s) **Directed Study** (1-3 cr, max 3). Normally offered in English and American literature and in linguistics; may not duplicate course offerings. Graded P/F. Prereq: perm.

Engl **504** (s) **Special Topics** (cr arr). Prereq: perm.

Engl **505 Composition Pedagogy and Practice** (3 cr). May be graded P/F. Introduction to composition theory with emphasis on pedagogical concepts and practices essential to teaching college-level writing. Prereq: perm.

Engl **506 Rhetoric and Composition: History, Theory, and Research** (3 cr). Critical examination of theory, pedagogy, and research in composition studies.

Engl **507 Phonetics and Phonology** (3 cr). Study of the physiology of speech-sound production and hearing, including their description, transcription, production, and discernment, and of the psychology of speakers of a language as they make systematic use of the speech-sounds available to them; diagnosis of errors of non-native speakers.

Engl **508 MAT Project** (3 cr). Graded P/F.

Engl **509** (s) **Creative Writing** (3 cr, max 12). Workshop for advanced writers; analysis of theory, composition, and techniques with applied goal of extending technical skills of the student writer through study of professional writers' work. All applicants must submit typed manuscripts of their work at least 10 days before registration. Prereq: perm.

Engl **ID510** (s) **Studies in Linguistics** (3 cr, max 12). WSU Engl 541. Topics such as phonology, morphology, syntax, linguistic history, or the application of linguistics to the teaching of English literature or composition. Prereq: 6 cr in the following, Engl 441, 442, 443, 496, 506, or perm.

Engl **511** (s) **Studies in Literary Criticism** (3 cr, max 12). History of criticism; various schools of literary criticism. Prereq: Engl 495 or perm.

Engl **512** (s) **Studies in Literary Theory** (3 cr, max 12). Various genres (poetry, drama, fiction), forms, and modes (tragedy, comedy, satire).

Engl **ID513 ESL Methods I: Basic Oral/Aural Skills** (3 cr). WSU Engl 544. Survey of most widely used classroom techniques for developing speaking and listening skills in a second language; alternative innovative approaches. Prereq: Engl 441 or perm. (Alt/yrs)

Engl **WS514 ESL Methods II: Reading, Writing, and Special Purpose English** (3 cr). WSU Engl 544. Survey of most widely used classroom techniques for developing reading and writing skills in a second language and teaching techniques to specialized professional programs. Prereq: Engl 441 or perm. (Alt/yrs)

Engl **ID515 ESL Teaching Practicum** (3 cr). WSU Engl 544. Organization and teaching of an ESL course under direction of practicum instructor. Graded P/F. Prereq: Engl 514 or perm. (Alt/yrs)

Engl **ID516 Intercultural Communication** (3 cr). WSU Engl 544. In-depth examination of major issues related to communication across cultures: communication theory, linguistic relativity, ethnography of speech, crosscultural rhetoric, and nonverbal communication. Prereq: Engl 441 or perm. (Alt/yrs)

Engl **ID517 Contrastive Linguistics** (3 cr). WSU Engl 543. Theory and practice of comparing and contrasting linguistic systems as basis for preparing instructional materials. Prereq: Engl 441 and one of the following, Engl 442, 443, 496, 510, or perm. (Alt/yrs)

Engl **ID518 Advanced English Grammar** (3 cr). WSU Engl 543. In-depth linguistic analysis of English grammar, giving special emphasis to morphology and syntax. Prereq: Engl 441 or perm (Engl 442 recommended).

Engl **ID519 Linguistic Analysis** (3 cr). WSU Engl 543. Advanced work in analysis and description of phonology, morphology, and syntax of languages. Prereq: Engl 441 or perm (Engl 442 recommended).

Engl **520** (s) **Studies in Medieval Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **530** (s) **Studies in Renaissance and 17th-Century British Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **540** (s) **Studies in Restoration and 18th Century British Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **WS543 Topics in English Linguistics** (3 cr, max 6). WSU Engl 543.

Engl **550** (s) **Studies in 19th-Century British Literature** (3 cr, max 12). Normally offered in survey of Romantic literature, survey of Victorian literature, genre studies, and major author(s).

Engl **560** (s) **Studies in American Literature Before 1900** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **570** (s) **Studies in 20th-Century British and American Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **581 Techniques of Poetry** (3 cr). A substantial and highly analytical examination of the art and craft of poetry, from a writerly perspective.

Engl **582 Techniques of Fiction** (3 cr). A substantial and highly analytical examination of the art and craft of fiction, from a writerly perspective.

Engl **583 Techniques of Nonfiction** (3 cr). A substantial and highly analytical examination of the art and craft of nonfiction, from a writerly perspective.

Engl **590 Creative Process** (3 cr). Advanced seminar in the exploration and study of the universal and the individual elements of the writer's creative process. Prereq: graduate student status.

Engl **591 Advanced Poetry Writing** (3 cr, max arr). Advanced poetry writing workshop. Prereq: graduate level only; perm by manuscript screening.

Engl **592 Advanced Fiction Writing** (3 cr, max arr). Advanced fiction writing workshop. Prereq: graduate level only; perm by manuscript screening.

Engl **593 Writing Literary Non-fiction** (3 cr, max arr). Seminar on the evolving genre of "literary non-fiction": using modes of fiction, drama, and poetry for nonfictive aims, such as memoirs or autobiography, travel narrative, and character sketch; workshop on participants' writing in the genre. Prereq: graduate level only; perm by manuscript screening.

Engl **594 Editing and Publishing** (3 cr). Workshop on preparing creative, scholarly, and popular manuscripts for publication; emphasis on practical experience in designing, editing, and producing literary magazines.

Engl **597** (s) **Practicum** (1-3 cr, max 3). Prereq: perm.

Engl **598** (s) **Internship** (1-3 cr). See Engl J498/J598.

Engl **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Entomology

**James B. Johnson, Division Chair, Entomology (242 Iddings Wing, Ag. Sc. Bldg. 83844-2339; phone 208/885-7543; djohnson@uidaho.edu).**

Ent **110 Insects and Humans** (2 cr). Introduction to anatomy, taxonomy, and biology of insects; learning how insects interact with humans in terms of agriculture, medicine, daily life, and the development of human cultures.

Ent **211 Insect Biology** (4 cr). *May be used as core credit in J-3-b.* Same as Biol 211. Classification, structure, and ecology of insects, and their importance to human society. Three lec and one 3-hr lab a wk.

Ent **322 Economic Entomology** (3 cr). Identification, biology, and importance of insects and related arthropods to humans and agriculture; basic principles of arthropod pest management. Two lec and one 3-hr lab a wk.

Ent **WS348 Forest Entomology** (2 cr). WSU Entom and NATRS 348. Course available only to students at off-campus locations.

Ent **WS361 Honey Bee Biology** (1 cr). WSU Entom 361. Biology of the honey bee including behavior, genetics, pollination, sociality, and beekeeping practices.

Ent **WS362 Fundamentals of Beekeeping** (1 cr). WSU Entom 362. Applied beekeeping practices including safety, equipment, colony installation, manipulation for pollination and honey production, honey bee diseases and pests.

Ent **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

Ent **400** (s) **Seminar** (cr arr). Prereq: perm.

Ent **WS401 Invertebrates in Biological Thought** (3 cr). WSU Entom 401. Development of historical ideas and knowledge from antiquity to present with emphasis on major advances achieved through invertebrate models.

Ent **404** (s) **Special Topics** (cr arr). Prereq: perm.

Ent **WS-J426/WS-J526 Population Analysis** (1 cr). WSU Entom 426/526.

Ent **WS-J429/WS-J529 Principles of Population Dynamics** (1 cr). WSU Entom 429/529.

Ent **438 Pesticides in the Environment** (3 cr). See Soil 438.

Ent **J440/J540 Insect Identification** (4 cr). Survey of approximately 200 major families; collecting and preservation techniques. For grad cr, an additional 50 families and selected subfamilies and genera will be covered and a term paper is reqd. Two lec and two 2-hr labs a wk; two 1-day field trips. Prereq: Ent 211 or perm. Alt/yrs.

Ent **ID-J441/ID-J541 Insect Ecology** (3 cr). WSU Entom 541. Population and community dynamics set in a systems framework; theory and applications in natural and altered systems. Requirements for graduate credit include a longer (10 vs. 5 pages), more synthetic term paper, and each 500-level student will lead a web-based or in-class discussion on a research paper of their choice. Two 1-day field trips. Prereq: Ent 211 and general ecology or perm.

Ent **ID-J445/ID-J549 Insect-Plant Interactions** (3 cr). WSU Entom 445/545. Ecology, evolution, and mechanisms of the interactions between insects and plants. Requirements for graduate credit include formal report of field study, term paper. Prereq: Ent 211. (Alt/yrs)

Ent **ID-J446/ID-J546 Host Plant Resistance to Insects and Pathogens** (3 cr). WSU Entom 446/546. Principles and methodologies for developing pest-resistant crop varieties. Requirements for graduate credit include preparation of grant proposal, classroom presentation. Field trips. Prereq: Ent 211 or perm. (Alt/yrs)

Ent **ID-J447/ID-J547 Fundamentals of Biological Control** (2 cr). WSU Entom 447/547. Intro to history and development of biological control and biological and ecological factors involved; emphasis on entomophagous and phytophagous insects. Semester project required for all students; for graduate credit, students present a paper or "grant proposal" for critique. Prereq: Ent 211 and general ecology or perm. (Alt/yrs)

Ent **WS448 Medical Entomology** (3 cr). WSU Entom 448. (Alt/yrs)

Ent **WS449 Veterinary Entomology** (1 cr). WSU Entom 449. Aspects of medical entomology as they apply to warm-blooded, non-human animals.

Ent **J451/ID&WS-J551 Applied Biological Control: Weeds** (1 cr). WSU Entom 551. Principles and methodologies in biological control of weeds. Requirements for graduate credit include leading a classroom presentation and discussion session. Prereq: one ecology course, Principles of Biological Control or perm. (Alt/yrs)

Ent **ID-J472/ID-J572 Aquatic Entomology** (3 cr). WSU Entom 472. Identification and biology of insects associated with aquatic and subaquatic environments. Additional projects/assignments required for graduate credit. One lec and two 3-hr labs a wk; two 1-day field trips.

Ent **WS480 Urban Entomology** (2 cr). WSU Entom 380. Management and biology of urban pests in home, landscape, and recreational environments.

Ent **J484/J584 Insect Anatomy and Physiology** (4 cr). Ent 484 same as Biol 494. Organ systems of insects and their functions. A comprehensive term paper and research project reqd for grad cr. Three lec and one 3-hr lab a wk. Prereq: Ent 211. (Alt/yrs)

Ent **J491/J591 Principles of Insect Pest Management** (3 cr). Quantitative analyses, ecological theory, and pest control tactics required to design and conduct integrated pest management programs for insects. Two written papers and one classroom seminar reqd for grad cr. Prereq: one course in statistics or perm. (Alt/yrs)

Ent **499** (s) **Directed Study** (cr arr). Prereq: perm.

Ent **500 Master's Research and Thesis** (cr arr).

Ent **501** (s) **Seminar** (cr arr). Prereq: perm.

Ent **502** (s) **Directed Study** (cr arr). Prereq: perm.

Ent **504** (s) **Special Topics** (cr arr). Prereq: perm.

Ent **WS507 Genetics and Molecular Aspects of Biological Control** (1 cr). WSU Entom 507. Introduction to genetics of biological control agents and the use of molecular techniques to advance biological control.

Ent **WS508 Rearing, Insectary, and Quarantine Operations** (1 cr). WSU Entom 508. Rearing of biocontrol agents in both the laboratory and glass house and quarantine operations.

Ent **WS509 Integrated Chemical Control of Pests** (1 cr). WSU Entom 509. Study of chemicals that are either compatible or highly disruptive toward the biological control of insects and other animal and plant pests.

Ent **ID510 Historical Development of Biological Control** (1 cr). WSU Entom 510. Follows the development of biological control from its historical roots to the application of modern techniques. Prereq: college-level biology course. (Alt/yrs)

Ent **WS512 Survey of Biological Control Agents** (2 cr). WSU Entom 512.

Ent **WS515 Sampling Insect Populations** (2 cr). WSU Entom 515.

Ent **ID516 Mechanisms of Host Plant Resistance** (1 cr). WSU Entom 516. Introduction to the physical, chemical, and physiological characteristics of plants that can produce resistance to attack or injury by insects.

Ent **WS526 Population Analysis** (1 cr). See Ent J426/J526.

Ent **WS529 Principles of Population Dynamics** (1 cr). See Ent J429/J529.

Ent **540 Insect Identification** (4 cr). See Ent J440/J540.

Ent **ID541 Advanced Insect Ecology** (3 cr). See Ent J441/J541.

Ent **WS543 Predator-Prey Dynamics** (1 cr). WSU Entom/Zool 543. Dynamic consequences of interactions between predators and their prey at the population, community, and ecosystem level. Prereq: general ecology.

Ent **ID546 Host Plant Resistance to Insects and Pathogens** (3 cr). See Ent J446/J546.

Ent **ID547 Fundamentals of Biological Control** (2 cr). See Ent J447/J547.

Ent **ID549 Insect-Plant Interactions** (3 cr). See Ent J445/J549.

Ent **WS550 Insect Physiology** (4 cr). WSU Entom 550.

Ent **ID&WS551 Applied Biological Control: Weeds** (1 cr). See Ent J451/J551.

Ent **WS556 Insecticides: Toxicology and Mode of Action** (1 cr). WSU Entom 556. Insecticides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and insect physiology. (Alt/yrs)

Ent **WS557 Herbicides: Toxicology and Mode of Action** (1 cr). WSU Entom and CropS 557. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism. Prereq: biochemistry, organic chemistry, physiology, plant or animal physiology.

Ent **WS558 Pesticide Topics** (1 cr). WSU Entom 558. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and plant, insect, or animal physiology. (Alt/yrs)

Ent **ID572 Aquatic Entomology** (3 cr). See Ent J472/J572.

Ent **WS583 Physiological Interactions in Predator/Prey Relationships** (1 cr). WSU Entom/Zool 583. Physiological, behavioral, and ecological aspects of host/parasitoid and prey-predator interactions. Prereq: general physiology, behavior, and ecology.

Ent **584 Insect Anatomy and Physiology** (4 cr). See Ent J484/J584.

Ent **591 Principles of Integrated Pest Management** (3 cr). See Ent J491/J591.

Ent **WS595 Noncropland Weed Biological Control Internship** (1-3 cr, max 6). WSU Entom 595. Prereq: grad standing; by interview only.

Ent **597** (s) **Practicum** (cr arr). Prereq: perm.

Ent **598** (s) **Internship** (cr arr). Prereq: perm.

Ent **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Ent **600 Doctoral Research and Dissertation** (cr arr).

# Environmental Engineering

**Margrit von Braun, Program Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail enve@uidaho.edu; http://www.uidaho.edu/enve).**

Note: Most of the courses in this program are in the Departments of Biological and Agricultural Engineering, Civil Engineering, and Chemical Engineering. Please refer to the curricular requirements in part 5 for a complete list of courses.

EnvE **435 Hazardous Waste Engineering** (3 cr). See CE 435.

EnvS **451-452 Environmental Management and Design** (3 cr, max arr). See ChE 451-452.

EnvE **500 Master's Research and Thesis** (cr arr).

EnvE **501** (s) **Seminar** (cr arr).

EnvE **531 Environmental Engineering Unit Operations** (3 cr). See CE 531.

EnvE **532 Design of Water and Wastewater Systems II** (3 cr). See CE J432/J532.

EnvE **533 Bioremediation** (3 cr). See BAE J433/J533.

EnvE **ID&WS534 Environmental Engineering Unit Processes** (3 cr). See CE 534.

EnvE **535 Applied Bioremediation** (3 cr). See BAE 534

EnvE **543 Water Quality Management** (3 cr). See CE J433/J533.

EnvE **544 Bioreactor Theory and Design for Waste Treatment** (3 cr). See BAE J432/J532.

EnvE **552 Environmental Water Quality** (3 cr). See BAE J452/J552.

EnvE **560 Biochemical Engineering** (3 cr). See ChE J460/J560.

EnvE **570 Hazardous Waste Management** (3 cr). See ChE J470/J570.

EnvE **575 Air Pollution Control** (2-3 cr). See ChE J475/J575.

EnvE **578 Treatment of Hazardous Chemical Waste** (3 cr). See ChE 578.

EnvE **579 Hazardous Waste Site Remediation Design** (3 cr). See ChE 579.

EnvE **580 Engineering Risk Assessment for Hazardous Waste Evaluations** (3 cr). See ChE J480/J580.

EnvE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Environmental Science

**Margrit von Braun, Program Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail envs@uidaho.edu; http://www.uidaho.edu/envs).**

Note: Most of the courses in this interdisciplinary program are in other academic departments and are not listed below. Please refer to the curricular requirements in part 5 for a complete list of classes.

EnvS **101 Introduction to Environmental Science** (3 cr) (C). May be used with *EnvS 102* as core credit in J-3-b. Introduction to basic principles in the biological, physical, and social science areas of environmental science.

EnvS **102 Field Activities in Environmental Sciences** (1 cr). May be used with *EnvS 101* as core credit in J-3-b. Field studies for EnvS 101. Field demonstrations on waste management, water, air pollution, and the ecosystem. Field trips required. Prereq or coreq: EnvS 101.

EnvS **200** (s) **Seminar** (cr arr). Prereq: perm.

EnvS **WS210 Microcomputer Models of Environmental Systems** (3 cr). WSU ES/RP 210.

EnvS **400** (s) **Seminar** (1 cr). Prereq: Sr standing.

EnvS **404** (s) **Special Topics** (cr arr). Prereq: perm.

EnvS **J409/J509 Principles of Environmental Toxicology** (3 cr). See FST J409/J/509.

EnvS **J412/J512 The Making of a Habitable Planet** (3 cr). See Geol J412/J512.

EnvS **R428 Pollution Prevention** (3 cr). Basic concepts of pollution prevention and waste minimization; pollution prevention strategies and case studies for solid waste, hazardous waste, water and energy use, and air pollution.

EnvS **R429 Environmental Audit** (3 cr). Details on a variety of equipment and processes used by business in order to decrease generation of solid and hazardous waste.

EnvS **WS-J445/WS-J545 Hazardous Waste Management** (3 cr). WSU ES/RP 445/545. Environmental, technical, and political aspects of hazardous waste management; evaluative methods, risk methods, risk assessment, and current management requirements.

EnvS **451-452 Environmental Management and Design** (3 cr, max arr). See ChE 451-452.

EnvS **R470 Survey of Hazardous Waste Management Problems** (3 cr). Cr not granted for both ChE J470/J570 and EnvS R470. Not applicable toward any engineering degree. Environmental, technical, political, and economic aspects of hazardous waste management. Prereq: sr standing and perm.

EnvS **R471 Waste Treatment Technologies** (3 cr). Not applicable toward any engineering degree. Procedures for characterization of hazardous waste sites, identification and application of physical, chemical, biological, and thermal treatment. Prereq: Math 143 and Chem 112.

EnvS **R472 Remediation Technologies and Project Implementation** (3 cr). Not applicable toward any engineering degree. Waste site remediation and restoration technologies and project development; includes alternative technologies, containment, storage and disposal; emphasis on project development, organization, and practices for dealing with hazardous chemical, radioactive, and mixed wastes and for successful site remediation operations including administrative, legal, economic, and political considerations. Prereq: sr standing and perm.

EnvS **J479/J579 Introduction to Environmental Regulations** (3 cr). Interpretation and implementation of local, state, and federal environmental rules; introduction to environmental regulatory process; topics include regulatory aspects of environmental impact assessment, water pollution control, air pollution control, solid and hazardous waste, resource recovery and reuse, toxic substances, pesticides, occupational safety and health, radiation, facility siting, environmental auditing and liability. Additional projects/assignments reqd for grad cr.

EnvS **R-J482/R-J582 Natural Resource Policy and Law** (3 cr). Examination of U.S. natural resource policy and law including historical contexts and current policies and laws. Additional projects/assignments reqd for grad cr. Prereq: an undergraduate course in political science.

EnvS **497** (s) **Senior Research and Thesis** (3 cr). Open only to majors in environmental science. Preparation of proposal, poster, formal presentional and written thesis based on research conducted with a faculty member. Research addresses an environmental problem using laboratory, field, or library techniques. Prereq: Sr standing. Prereq or coreq: Engl 317 or equiv.

EnvS **498** (s) **Internship** (cr arr). Prereq: perm.

EnvS **499** (s) **Directed Study** (cr arr). Prereq: perm.

EnvS **500 Master's Research and Thesis** (cr arr).

EnvS **501** (s) **Seminar** (cr arr).

EnvS **502** (s) **Directed Study** (cr arr). Prereq: perm.

EnvS **504** (s) **Special Topics** (3 cr, max arr). Prereq: perm.

EnvS **509 Principles of Environmental Toxicology** (3 cr). See FST J409/J/509.

EnvS **512 The Making of a Habitable Planet** (3 cr). See Geol J412/J512.

EnvS **WS528 Pollution Prevention** (3 cr). WSU ES/RP 428. Introduction to practical tools necessary for completing on-site waste audits.

EnvS **R531 Environmental Modeling** (3 cr). Description of chemical environmental fate and transport processes mathematically; transformation of mathematical concepts to computer programs; art of model calibration and verification, and techniques in uncertainty analysis.

EnvS **541 Sampling and Analysis of Environmental Contaminants** (3 cr). Monitoring system design, sampling procedures, RCRA/CERCLA sampling, quality assurance data quality objectives. Prereq: Chem 112, Stat 301.

EnvS **WS545 Hazardous Waste Management** (3 cr). See EnvS J445/J545.

EnvS **WS550 System Dynamics Models of Environmental Systems** (3 cr). WSU ES/RP 550.

EnvS **552 Environmental Philosophy** (3 cr). See Phil 452.

EnvS **WS555 Environmental Planning** (3 cr). WSU ES/RP 555.

EnvS **579 Introduction to Environmental Regulations** (3 cr). See EnvS J479/J579.

EnvS **R580 Environmental Law and Regulation** (3 cr). Emphasis on cases, legislation, and policies behind environmental laws and regulations to enhance understanding of judicial construction and interpretation of environmental laws. Prereq: EnvS 479/579 or perm.

EnvS **R581 Applications of Environmental Regulations** (3 cr). Details of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); interpretation and application of environmental regulations to remediation of hazardous waste treatment, storage, and disposal sites; detailed coverage of environmental regulatory affairs of concern in Idaho; interrelationships between RCRA, CERCLA, and other environmental laws. Prereq: EnvS 479/579 or perm.

EnvS **R582 Natural Resource Policy and Law** (3 cr). See EnvS J482/J582.

EnvS **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Family and Consumer Sciences

**Nancy J. Wanamaker, Interim Director, Margaret Ritchie School of Family and Consumer Sciences (105 Mary Hall Niccolls Family and Consumer Sciences Bldg. 83844-3183; phone 208/885-6545; e-mail famcon@uidaho.edu).**

FCS **105 Individual and Family Development** (3 cr). Basic principles and sequences in individual and family development; family structure and functions as they support human development.

FCS **ID119 Fashion from Concept to Consumer** (3 cr) (FCS ID429). WSU AMT 314. Introduction to the sewn product manufacturing and merchandising industry; focus on social-psychological, cultural, historic, aesthetic, design, business, and economic factors; emphasis on careers in the sewn products industry.

FCS **123 Textiles** (3 cr). Fiber, yarn, and fabric properties, color and finishes as they relate to performance, care, and consumer satisfaction. Two lec and one 2-hr lab a wk.

FCS **ID170 Food: Science and Practice** (3 cr). Same as FST 170. WSU FSHN 170. Fundamental processes underlying food preparation with emphasis on physical and chemical aspects. Two lec and one 3-hr lab a wk. Prereq: 3 cr of Chem 101 or 111.

FCS **200** (s) **Seminar** (cr arr). Prereq: perm.

FCS **203** (s) **Workshop** (cr arr). Prereq: perm.

FCS **204** (s) **Special Topics** (cr arr). Prereq: perm.

FCS **205 Concepts in Human Nutrition** (3 cr) (C). Nutrition principles with their application to nutrition in life cycle; nutrition problems and controversies such as weight control and nutrition for athletes; individual computerized study of student's dietary intake.

FCS **WS208 Visual Merchandising and Promotion** (3 cr). WSU AMT 208.

FCS **ID&WS223 Evaluation of Apparel and Textiles** (3 cr). WSU AMT 218. Analysis of textile and apparel products relative to production methods, product performance, and consumer value. Three lec and 2 hrs of lab a wk; field trips. Prereq: FCS 123 or perm.

FCS **ID&WS224 Apparel Design I** (3 cr). WSU AMT 216. Design conception, fabric characteristics, garment assembling, principles of fitting, quality control for the apparel industry. One lec and five hrs of lab a wk.

FCS **234 Infancy and Early Childhood** (3 cr). Influences on development before birth through the preschool years; factors that determine physical, emotional, cognitive, social, and creative development.

FCS **235 Principles and Methods of Child Observation** (3 cr). Development of skills necessary to observe, record, and interpret child behavior; observations to be arranged. Prereq: FCS 234 or perm.

FCS **240 Intimate Relationships** (3 cr). Dynamics of intimate relationships from early adulthood through the adult lifespan.

FCS **270 Intermediate Foods** (3 cr). Sensory evaluation, meal planning, consumer issues, cultural influences on food choices. Two lec and one 2-hr lab a wk. Prereq: FCS 170.

FCS **299** (s) **Directed Study** (cr arr). Prereq: perm.

FCS **ID305 Nutrition Related to Fitness and Sport** (3 cr). WSU Ath T and FSHN 305. Identification of energy, macro/micro nutrient and fluid requirements during exercise; evaluation of dietary regimens and ergogenic aids for pre and post competition, weight maintenance, and wellness; assignments include a case analysis of a UI or WSU athlete and evaluation and critical review of related research. Prereq: FCS 205.

FCS **WS306 Gerontology** (3 cr). WSU H D 305. Examination and analysis of social context of aging including public policy, implications of demographic shifts, and quality-of-life issues.

FCS **WS318 Merchandising Mathematics** (3 cr). WSU AMT 318. Overview of apparel retailing, merchandise planning, and buying; application of planning and buying principles, and preparation for professional experiences. Prereq: Bus 321 or perm.

FCS **ID&WS324 Apparel Design II** (3 cr). WSU AMT 311. Methods and principles of flat pattern design; use of pattern making skills to create original designs; development and application of computer skills in designing apparel for the industry. One lec and five hrs of lab a wk. Prereq: FCS 224 or perm.

FCS **329 History of Western Dress** (3 cr). Historic overview of western dress from ancient Mesopotamia and Egypt to Western Europe through the 20th century; focus on dress and human appearance as a reflection of the socio-cultural factors of the times.

FCS **333 Developmental Curriculum for Young Children** (3 cr). Principles and practices of a developmentally based curriculum, assessment, intervention, and evaluation. Two lec and two hrs of lab a wk. Prereq: FCS 235 or perm.

FCS **334 Middle Childhood-Adolescence** (3 cr). Behavior, development, and guidance of children and youth from entrance in school until they are launched into adulthood; influences of family, school, peer group, and larger community. Prereq: Psyc 101, Soc 101, or perm.

FCS **340 Parent-Child Relationships in Family and Community** (3 cr). May be taken by nonmajors. Dynamics of parent-child interactions and models for parent education programs in community and school settings. Prereq: FCS 234 or 334.

FCS **346 Personal and Family Finance and Management** (4 cr) (C). Principles and procedures of individual and family management and their relationship to human and economic resources; applications of management principles to spending, saving, borrowing, and investing decisions.

FCS **350 Curriculum Development in Family and Consumer Sciences Education** (3 cr) (FCS 450). Analysis of curricular models and content; development of curricular units for family life. Prereq: admission to teacher education.

FCS **351 Administration of FCCLA Organizations** (2 cr). This course will prepare FCS education students to become successful advisors of co-curricular FCCLA chapters. Prereq: Admission to teacher education, and BuEd 111, BuEd 415, or Ed 328.

FCS **361 Advanced Nutrition** (4 cr). Principles of nutrition; physiology of digestion, absorption and metabolism of nutrients. Three lec and 2 hrs of lab a wk. Prereq: FCS 205, MMBB 300, Biol 120 and 121.

FCS **362 Introduction to Clinical Dietetics** (3-4 cr). Nutritional assessment; introduction of nutrition therapies for disease. Three lec; 3 hrs of supervised practice a wk for 1 cr; only CPD students take 4 credits. Prereq: FCS 361.

FCS **363 Diet Therapy** (4 cr). Diet modification for adult and child needs in disease and convalescence. Clinical experience in Spokane hospitals. Prereq: Sr standing in CPD.

FCS **364 Clinical Dietetics I** (4 cr). Clinical experience in Spokane hospitals. Prereq: Sr standing in CPD.

FCS **384 Quantity Food Production and Equipment** (5 cr). Food production in large volume; use and selection of institutional equipment and food; supervised practice in food service. Three hrs of lec, 1 hr of recitation, and 5 hrs of supervised practice a wk. Prereq: FCS 270 or perm.

FCS **387 Food Systems Management** (3 cr). Institutional organization and management; supervised practice in food service. Two lec and 3 hrs of supervised practice a wk. Prereq: FCS 384 or perm.

FCS **400** (s) **Seminar** (cr arr). Prereq: perm.

FCS **403** (s) **Workshop** (cr arr). Prereq: perm.

FCS **404** (s) **Special Topics** (cr arr). Prereq: perm.

FCS **ID405 Eating Disorders** (2 cr). WSU FSHN 405. Examination of anorexia nervosa, bulimia nervosa, compulsive eating, obesity, and weight preoccupation; discussion of cultural and nutritional factors, family issues, and psychological consequences, as well as preventative and therapeutic interventions.

FCS **C410 Growing Old in a New Age** (3 cr). Overview of issues related to aging; life-span development, how environments affect older persons, seeking an optimal quality of life, cross-cultural considerations, how aging is studied, and how to access resources.

FCS **ID411 Global Nutrition** (2 cr). WSU FSHN 411. The history of food and hunger, and the global nature of our food systems focusing on the impact of our food decisions on the environment, agricultural production, world populations relative to food supply, hunger, biotechnology, and safety of our food supply.

FCS **WS417 Social and Psychological Aspects of Dress** (3 cr). WSU AMT 417. Students engage a multidisciplinary framework in considering the social importance of the body and dress.

FCS **419 Dress and Culture** (3 cr) (FCS 129). Dress and culture examined from an interdisciplinary and cross-cultural perspective with emphasis on diversity within a global scale society; the relationship of dress to physical environments, social and economic systems, aesthetic expression, individual identity, and cultural ideals and values. Field trip. Prereq: humanities and social science core completed, Jr standing, or perm.

FCS **ID423 Sewn Product Industry Tour** (1 cr). Field site tours of sewn product industry firms representing the design/manufacturing, merchandising, and auxiliary services arms of the industry. Forty-five hrs of instruction/field experience: five hours class lecture, planning, and discussion; forty hours visiting companies (five 8-hour days). Variable field trip fee depending on actual cost.

FCS **424 Aesthetics for the Apparel Professional** (3 cr). Pattern creation through draping method; application of computer skills in designing apparel for target groups. One lec and 5 hrs of lab a wk. Prereq: FCS 119, 223, 224, or perm.

FCS **ID428 Housing America's Families** (3 cr). WSU H D 428. Housing, furnishings, and equipment as they influence family well-being, and families' housing choices as affected by social, psychological, economic, technological, and political factors. Four-five 2-hr field trips.

FCS **J434/J534 Adulthood and Aging within the Context of Family** (3 cr). Analysis of development from young adulthood to old age. Includes factors that influence changes as well as continuity in physical, emotional, social, cognitive, and creative development. Overview of theories of human development and current issues in aging, including dementia, family and lifestyle choices, relationships, retirement, and grandparenting. Requirements for graduate credit include conducting a review of literature in a chosen topic and presenting it to the class. Prereq: FCS 105, Jr standing. (Alt/yrs).

FCS **435 Feeding Young Children in Group Settings** (1 cr). This course increases awareness concerning the best practices in feeding young children. Practical, hands-on activities and assignments are included in the course through videotapes and the course website, http://www.aee.uidaho.edu/feeding. Graded P/F.

FCS **436 Theories of Child and Family Development** (3 cr). Identification, interpretation, and evaluation of individual and family developmental theories.

FCS **440 Contemporary Family Relationships** (3 cr) (C). Dynamics of the major types of family relationships; marital, parent-child, sibling, and extended-family interaction in contemporary society. Prereq: Psyc 101, Soc 101, or perm.

FCS **444 Diverse Populations and Individual Differences** (2-3 cr). See ACTE 444.

FCS **J445/J545 Issues in Work and Family Life** (3 cr). Study of theories, trends, policies, and issues related to work and family; examination of assessment instruments; development of proposals. Additional projects/assignments reqd for grad cr. Prereq: FCS 105 and 346, or perm. (Alt/yrs)

FCS **448 Consumer Economic Issues** (3 cr). Consumer economic issues, including consumers in the marketplace, the consumer movement, rights and remedies, advocacy, public policy, decision making, buying, credit, banking, insurance, clothing, health care, food, housing, and investments. Prereq: Econ 201 or 202 or perm.

FCS **451 Professional Development** (3 cr). Ethics, public policy, and communication related to family and consumer issues. Prereq: Sr standing.

FCS **460 Family as an Ecosystem** (3 cr). Survey of the literature and discussion of the interaction between ecological factors (political, social, and economic) and contemporary families; analysis of the interrelationship of social change and family values, structure, and roles.

FCS **461 Method & Strategies in FCS Education** (3 cr). Changing family and societal conditions and enhancing teaching and learning processes are addressed in this course. A focus is integration of professional-technical concepts and the development of classroom presentation skills. Prereq: FCS 450.

FCS **465 Introduction to FCS Student Teaching** (3 cr). Field-based introduction to the student teaching environment with guided observations and initial lesson development. Prereq: Assignment to student teaching site.

FCS **471 Student Teaching in Family and Consumer Sciences Education** (10 cr). Ten weeks of practical experience in secondary family and consumer sciences program; one week of field-based experience at assigned student teaching center before beginning of semester is required. Prereq: admission to teacher education, FCS 450.

FCS **472 Clinical Dietetics II** (6 cr). Continuation of FCS 364. Supervised practice in Washington/Idaho hospitals. Prereq: FCS 364, Sr standing in CPD.

FCS **ID&WS473 Community Nutrition** (2-4 cr). WSU FSHN 426. Nutrition program; nutrition problems of special groups. Clinical experience in Spokane school lunch program, public health, etc. Two lec and six hrs of supervised practice a wk. Prereq: Sr standing in CPD.

FCS **474 Food Research and Development** (3 cr). Same as FST 474. Independent and team research on foods and food products; sensory and objective testing of food; research writing and presentation. Two lec and 3 hrs of lab a wk. Prereq: FCS 270, MMBB 300 or perm.

FCS **485 Computer Applications in Food Administration** (2 cr). Nutrient analysis and management of ingredients, recipes, menus, and related functions. One hr of lec and 2 hrs of lab a wk. Prereq or coreq: FCS 384 or perm.

FCS **ID&WS486 Nutrition in the Life Cycle** (4 cr). WSU FSHN 331. Maternal nutrition and fetal development; lactation; nutritional needs and dietary patterns from infancy through old age. Three lec and 2 hrs of lab a wk. Prereq: Sr standing in CPD.

FCS **487 Management Supervised Practice** (2 cr). Food service management; program organization, analysis, and evaluation of food service facilities and resources; equipment/purchasing tours; pre-practicum experience. One lec and 3 hrs of supervised practice a wk. Prereq: FCS 387.

FCS **488 Management Supervised Practice II** (6 cr). Supervised practice with dietitians and employees in school and hospital food service settings in Idaho or Washington. Prereq: FCS 487.

FCS **496 Internship: Fashion Business** (3-9 cr, max 9). Supervised experience in fashion business: fashion design, textile/apparel manufacturing, retailing, merchandising; geared to career goals of student. Graded P/F. Prereq: perm.

FCS **497** (s) **Practicum** (cr arr). On- or off-campus supervised applied experience in family and consumer sciences major areas: child development and family relations; clothing, textiles, and home design; food and nutrition; consumer education; and cooperative extension. Prereq: perm.

FCS **498** (s) **Internship** (3-9 cr, max 9). Supervised internship in education institutions, governmental/social agencies, hospitals, business, or industry; geared to the professional goals of students. Prereq: perm.

FCS **499** (s) **Directed Study** (cr arr). Prereq: perm.

FCS **500 Master's Research and Thesis** (cr arr).

FCS **501** (s) **Seminar** (cr arr). Prereq: perm.

FCS **502** (s) **Directed Study** (cr arr). Prereq: perm.

FCS **503** (s) **Workshop** (cr arr). Prereq: perm.

FCS **504** (s) **Special Topics** (cr arr). Prereq: perm.

FCS **507 Research Methodology** (3 cr). See AgEc 507.

FCS **508 Helping Skills in Family and Consumer Sciences** (3 cr). Using the Skilled Helper Model, students apply the model in working with families and clientele in FCS occupations.

FCS **WS513 Mineral and Vitamin Metabolism** (4 cr). WSU FSHN 513. Physiological chemistry and metabolism of vitamins and minerals in animals and humans.

FCS **WS514 Advanced Human Nutrition** (4 cr). WSU FSHN 504. Study of experimental evidence related to dietary guidelines, metabolism, and nutritional assessment; critique and research design of nutrition research.

FCS **WS520 Research Methods in Behavioral Nutrition** (3 cr). WSU FSHN 520. Study and evaluation of theoretical approaches used in behavioral nutrition research.

FCS **WS521 Research Methods in Human Development I** (3 cr). WSU H D 513. Introduction to process of research and methods in human development; includes techniques of research, data collection, and data analysis procedures. Prereq: perm.

FCS **WS522 Research Methods in Human Development II** (3 cr). WSU H D 514. Integration of formal decision making into the social science research process; includes procedures appropriate for experimental, quasi-experimental, and field research. Prereq: perm.

FCS **WS526 Advanced Community Nutrition** (3 cr). WSU FSHN 526. The study of community nutrition issues from the perspectives of practitioner, researcher, and administrator; development and presentation of grant proposals.

FCS **534 Adulthood and Aging within the Context of Family** (3 cr). See FCS J434/J534.

FCS **ID540 Parent-Child Relationships** (3 cr). WSU H D 558. Open to nonmajors. The developing family; patterns of child rearing. Prereq: FCS 234 or 334, 440, and 6 cr in psychology and/or sociology or equivalent.

FCS **545 Issues in Work and Family Life** (3 cr). See FCS J445/J545.

FCS **551 Techniques of Supervision** (2 cr).

FCS **ID554 Program Development in Child, Family, and Consumer Studies** (3 cr). WSU H D 535. Analysis and development of program delivery systems, curricula, and evaluation models.

FCS **WS555 Effective Intervention Programs** (3 cr). WSU HD 540.

FCS **ID560 Resource Management Across the Lifespan** (3 cr). WSU H D 575. Management of economic and human resources with focus on family structures in all socioeconomic and age groups. Prereq: FCS 346 or equivalent or perm.

FCS **ID561 Sports Nutrition** (3 cr). WSU FSHN 561. Macronutrient and selected micronutrient utilization during exercise and restoration after feeding, dietary surveys of athletes, dietary ergogenic aids, and discussion of the origins of dietary recommendations for athletes. Prereq: perm. (Alt/yrs; Spring only)

FCS **WS580 Families, Community and Public Policy** (3 cr). WSU H D 580. Analysis of family policy research; role of family policy research in public policy and knowledge building processes. Prereq: approved graduate research methods course.

FCS **ID590 Intellectual Foundations in Family and Consumer Sciences** (3 cr). WSU AMT 598. Overview of historical perspectives of family and consumer sciences profession; explanation and application of alternative modes of inquiry in family and consumer sciences research.

FCS **WS594 Readings in Apparel, Merchandising, and Textiles** (3 cr). WSU AMT 594. Exploration of current topics through readings in apparel, merchandising, and textiles.

FCS **597** (s) **Practicum** (cr arr). Prereq: perm.

FCS **598** (s) **Internship** (cr arr). Supervised internship in educational institutions, governmental/social agencies, hospitals, or industry; geared to the educational and vocational goals of students. Prereq: perm.

FCS **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Fishery Resources

**George W. LaBar, Head, Dept. of Fish and Wildlife Resources (105 CNR Bldg. 83844-1136; phone 208/885-6434).**

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

Fish **102 The Fishery Resources Profession** (1 cr). Orientation of students to the profession of fishery resources; career opportunities, employment, duties of a fishery biologist, job preparation, management challenges in the Pacific Northwest. (Fall only)

Fish **200** (s) **Seminar** (cr arr). Prereq: perm.

Fish **203** (s) **Workshop** (cr arr). Prereq: perm.

Fish **204** (s) **Special Topics** (cr arr). Prereq: perm.

Fish **290 Fish and Wildlife Ecology, Management, and Conservation** (3 cr). Same as WLF 290. Open to non-majors only. Application of biological and ecological principles and concepts to conservation and management of fish and wildlife populations and their habitats.

Fish **299** (s) **Directed Study** (cr arr). Prereq: perm.

Fish **302 Wildland Field Ecology** (2 cr). Same as ForP/For/Rnge/RRT/WLF 302. Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235, and For/Rnge 221 or Biol 314. (Summer only)

Fish **ID314 Fish Ecology** (3 cr). WSU Zool 314. Examination of physical, chemical, and biological factors that affect fish populations and communities, with emphasis on environmental stressors. Prereq: For/Rnge/WLF 221 or basic ecology. (Fall only)

Fish **316 Principles of Population Dynamics** (2 cr). Basic principles of population ecology of animals. Taught first half of semester. Prereq: For/Rnge 221. (Spring only)

Fish **WS319 Aquaculture** (2 cr). WSU A S 468. History and overview of aquaculture. Prereq: Biol 112, Chem 101.

Fish **398** (s) **Renewable Natural Resources Internship** (cr arr). Same as For/Rnge/WLF 398. Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

Fish **400** (s) **Seminar** (cr arr). Prereq: perm.

Fish **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Fish **403** (s) **Workshop** (cr arr). Prereq: perm.

Fish **404** (s) **Special Topics** (cr arr). Prereq: perm.

Fish **411 Ichthyology** (4 cr). See Biol J481/J581. (Alt/sem)

Fish **ID&WS415 Limnology** (4 cr). WSU ES/RP and Zool 411. Same as Biol 435. Physical, chemical, and biological features of lakes and streams. Four 1-day field trips. Prereq: For/Rnge 221 or Biol 314. (Fall only)

Fish **ID&WS418 Fisheries Management** (4 cr). WSU NATRS 416. Techniques employed in sampling and application of principles toward managing recreational and commercial aquatic resources. Three lec and one 3-hr lab a wk; two weekend field trips. Prereq: Fish 314 and 411, Stat 251. (Fall only)

Fish **ID422 Concepts in Aquaculture** (3 cr). WSU NATRS 424. Concepts and methods of extensive and intensive aquaculture in warm water and cold water systems. Two field trips reqd (a 1-day and a 3-day field trip). Prereq or coreq: Fish 411. (Fall only)

Fish **ID424 Fish Health Management** (3 cr). WSU NATRS 421. Epidemiology, prevention, diagnostics, and treatment of infections and non-infectious diseases of free-living and confined finfish and shellfish. Two field trips reqd (a 1-day and a 3-day field trip). Prereq: MMBB 250; Fish 422 recommended. (Spring only)

Fish **430 Riparian Ecology and Management** (2 cr). Same as Rnge 430. Structure, function, and management of riparian ecosystems; interrelationships of terrestrial and aquatic components of riparian areas. Prereq: For/Rnge 221 or Biol 314. (Fall only)

Fish **446 Diseases of Wild Birds and Mammals** (2 cr). See WLF 446.

Fish **470 Interdisciplinary Natural Resource Planning** (3 cr). Same as ForP/For/Rnge/RRT/WLF 470. Examines how ecological and social sciences are interrelated and how they influence natural resource decisions; students learn how to work effectively in teams to make sound management decisions and communicate those decisions to a variety of constituents. Three hrs of lec and three hrs of recitation a wk; one 2-day field trip. Prereq: Sr standing; For/RRT 235; For/Rnge 221; For/Rnge/ForP/RRT/WLF/Fish 302 or RRT 306; or perm.

Fish **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Same as ForP/For/Rnge/RRT/WLF 485. Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

Fish **495** (s) **Seminar** (1 cr). Discuss integrating biological, social, political, economic, and philosophic aspects of problems in managing fishery resources. (Spring only)

Fish **497 Senior Thesis** (1-3 cr, max 6). Same as ForP/For/Rnge/RRT/WLF 497. Open only to majors in fishery resources. Preparation of thesis, exhibition, video, computer program, multimedia program, or other creative presentation based on research conducted under the guidance of a faculty mentor. Prereq: cumulative GPA of at least 3.2 in all college courses, completion of at least 90 credits, and permission of a faculty mentor.

Fish **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing, GPA 2.5, and perm.

Fish **500 Master's Research and Thesis** (cr arr).

Fish **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

Fish **502** (s) **Directed Study** (cr arr). Prereq: perm.

Fish **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

Fish **504** (s) **Special Topics** (cr arr). Prereq: perm.

Fish **ID510 Advanced Fishery Management** (3 cr). WSU Zool 513. Compensation as a phenomenon basic to exploitation; yield in numbers and weight; models of yield; stock-recruitment functions; economic yield; application of theory of physical and economic yield to empirical examples in commercial and sport exploitation. One 5-day field trip. (Alt/yrs; spring only)

Fish **ID511 Fish Physiology** (2 cr). WSU Zool 515. Principles and methods used to study vital organs, organ systems, growth, and reproduction of fishes; emphasis on osmoregulation, metabolism, endocrinology, and respiration. Prereq: Fish 411 and perm. (Alt/yrs; fall only)

Fish **ID512 Aquatic Pollution Ecology** (3 cr). WSU Zool 512. Principles and working examples of the ecology of polluted aquatic stream and lake habitats. Two 1-day field trips. Prereq: Fish 415 or perm. (Alt/yrs; spring only)

Fish **513 Aquatic Restoration Ecology** (3 cr). A review of the response of impacted lake, stream, and wetland ecosystems to rehabilitation and restoration. Theory and working examples of each will be addressed. (Alt/yrs, spring only).

Fish **ID514 Fish Population Ecology** (2 cr). WSU Zool 514. Review of abiotic and biotic factors controlling or regulating fish population densities and critical review of relevant literature. (Alt/yrs; fall only)

Fish **515 Large River Fisheries** (2 cr). Management issues and problems in large river fisheries in North America and globally; importance of flood plains; ecological bases for management actions in large rivers; river fisheries in the context of multiple use of large rivers. (Alt/yrs; fall only)

Fish **WS519 Fish Genetics** (2 cr). WSU GenCB 516.

Fish **ID520 Fish Behavior** (3 cr). WSU Zool 517. Causes, mechanisms, and functions of fish behavior, including reproduction, communication, schooling, feeding, migration, and orientation. (Alt/yrs; spring only)

Fish **524 Fish Disease Diagnostics and Control** (2 cr). Introduction and training in diagnostic techniques and control methodologies for common fish diseases: review of the cellular mechanisms for disease defense in fish. (Alt/yrs; fall only)

Fish **530 Stream Ecology** (3 cr). Same as Rnge 530. Structure and function of running water ecosystems; principles of population, community, and ecosystem ecology in streams and rivers. Three 1-day field trips reqd. (Alt/yrs; spring only)

Fish **589 Water Resources Seminar** (1 cr). See Intr 589.

Fish **597** (s) **Practicum** (cr arr). Prereq: perm.

Fish **598** (s) **Internship** (cr arr). Prereq: perm.

Fish **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Fish **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Food Science and Toxicology

**Denise M. Smith, Head, Dept. of Food Science and Toxicology (22 Glen C. Holm Bldg. 83844-2201; phone 208/885-7081; toll-free 888/900-3783; e-mail fstasl@uidaho.edu).**

FST **ID170 Food: Science and Practice** (3 cr). See FCS 170. WSU FSHN 170.

FST **204** (s) **Special Topics** (cr arr). Prereq: perm.

FST **ID220 Food Safety and Quality** (3 cr). WSU FSHN 220. Regulation, safety, and wholesomeness of food products; microbiological, chemical, and physical risks associated with food; hazard analysis as related to food safety, processing and quality; sanitation and pest management principles; methods for analyzing the sensory qualities of food products; problem management associated with food quality assurance. This course is also available on-line as a web-based course.

FST **264 Consumer Meats** (3 cr). See AVS 264.

FST **WS303 Food Processing** (3 cr). WSU FSHN 303. Specialized techniques and practices of food processing and marketing. Field trip reqd. Recommended preparation: MMBB 250, Chem 275 and 276.

FST **WS304 Cereal Products** (2 cr). WSU FSHN 304. Technical principles related to production and commercial processing of legume and cereal foods. Field trip reqd. Prereq: Chem 275, 276.

FST **363 Animal Products for Human Consumption** (3 cr). See AVS 363.

FST **400** (s) **Seminar** (cr arr). Prereq: perm.

FST **404** (s) **Special Topics** (cr arr). Prereq: perm.

FST **J409/J509 Principles of Environmental Toxicology** (3 cr). Fundamental toxicological concepts including dose-response relationships, absorption of toxicants, distribution and storage of toxicants, biotransformation and elimination of toxicants, target organ toxicity and teratogenesis, mutagenesis, and carcinogenesis; chemodynamics of environmental contaminants including transport, fate, and receptors; chemicals of environmental interest and how they are tested and regulated; risk assessment fundamentals. Students registering for FST 509 are required to prepare an additional in-depth report. Prereq: Biol 102 or 112, Chem 111, and 275 (Chem 112 and Stat 251 recommended).

FST **ID416 Food Microbiology** (2 cr). WSU FSHN and MBioS 444. Same as MMBB 416. Purpose for enumeration, detection, and identification of microorganisms in food products; physical, chemical, and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Prereq: MMBB 154 or 250.

FST **ID417 Food Microbiology Laboratory** (2 cr). WSU FSHN 417 and MBioS 445. Same as MMBB 417. Methods for enumeration, detection, and identification of spoilage and pathogenic microorganisms in foods. Two 3-hr labs a wk. Prereq or coreq: FST/MMBB 416.

FST **J427/J527 Transmission Electron Microscopy** (3 cr). Discussion and application of basic skills reqd in use of transmission electron microscope, including simple specimen preparation techniques and photographic darkroom skills. Additional projects/assignments reqd for grad cr.

FST **WS-J429/WS-J529 Dairy Products** (4 cr). Dairy chemistry, microbiology, sanitation, product development and processing from cow to consumer. Prereq: MMBB 250 and 300.

FST **ID&WS433 Agricultural Processing Systems** (3 cr). WSU AgTM and FSHN 433. Principles of heat transfer, steam, air-vapor mixtures, refrigeration and fluid flow as applied to commodity processing and storage.

FST **WS434 Agricultural Processing Laboratory** (1 cr). WSU AgTM and FSHN 434. Experiments in heat transfer, fluid flow, and dehydration.

FST **J440/J540 Biological Electron Microscopy** (4 cr). Application of biological specimen preparation techniques in EM, including ultramicrotomy and use of specific stains. Students registering for FST 540 are reqd to complete an additional written report. Prereq: FST J427/J527.

FST **J441/J541 Scanning Electron Microscopy** (3 cr). Theory and principles of scanning electron microscopy as investigative tool; includes operation and maintenance of electron microscope, specimen preparation, and photographic darkroom procedure. Students registering for FST 541 are reqd to complete an additional research paper.

FST **ID&WS460 Food Chemistry** (3 cr). WSU FSHN 460. Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Prereq: Chem 275, 276, and MMBB 300.

FST **ID&WS461 Food Chemistry Laboratory** (1 cr). WSU FSHN 461. Experiments related to properties, reactions, and interactions of chemical components of foods.

FST **WS462 Food Analysis** (4 cr). WSU FSHN 462. Introductory food analysis; methods common to many food commodities. Prereq: Chem 275, 276, and MMBB 250.

FST **ID-J464/ID-J564 Food Toxicology** (3 cr). WSU FSHN 464/565. General principles of toxicologic evaluation of chemicals, which intentionally or unintentionally enter the food chain. Toxicology of food additives, colors, preservatives, drugs, pesticides and natural toxins in foods and risk characterization. Additional projects/assignments reqd for grad cr. Prereq: MMBB 300 or 380.

FST **WS-J470/WS-J570 Advanced Food Technology** (3 cr). WSU FSHN 470/570. Cr not granted for both FST 470 and 570. Physical principles of food preservation and recent advances in food technology. Additional projects/assignments reqd for grad cr. Prereq: FST 416, 433 or perm.

FST **474 Food Research and Development** (3 cr). See FCS 474.

FST **WS-J482/WS-J582 Food Process Engineering Design** (3 cr) (FST WS-J487/WS-J587). WSU BSysE 482/582. Same as BAE 482/582. Fundamentals for design of food processing systems; food properties; thermal and physical processes. Prereq: FST 433.

FST **489 Food Product Development** (3 cr). Course serves as a capstone experience for food science seniors, and will require the application of food chemistry, food processing/engineering, and microbiology course knowledge in formulating a new food product. Prereq: FST 303, 416, and 460, or perm.

FST **499** (s) **Directed Study** (cr arr). Prereq: perm.

FST **500 Master's Research and Thesis** (cr arr).

FST **501** (s) **Seminar** (cr arr). Prereq: perm.

FST **502** (s) **Directed Study** (cr arr). Prereq: perm.

FST **503** (s) **Workshop** (cr arr). Prereq: perm.

FST **504** (s) **Special Topics** (cr arr). Prereq: perm.

FST **WS505 Principles and Methods of Toxicology** (3 cr). WSU P/T 505. Principles of modern, predictive toxicology; actions, biological disposition and environmental fate of natural products, drugs, pesticides, food chemicals, and pollutants.

FST **WS506 Principles of Pharmacology** (2 cr). WSU P/T 506. Fundamental mechanisms of drug action and the factors that modify drug responses; autonomic and cardiovascular pharmacology.

FST **509 Principles of Environmental Toxicology** (3 cr). See FST J409/J509.

FST **WS510 Advanced Food Chemistry** (3 cr). WSU FSHN 510. Chemical, physical, and toxicological properties of water, vitamins, pigments, synthetic colors, minerals, miscellaneous food additives, and natural toxicants. Prereq: MMBB 380. (Alt/yrs)

FST **WS512 Food Carbohydrates and Lipids** (3 cr). WSU FSHN 511. Occurrence, structure, properties and functions of carbohydrates and lipids in foods. Prereq: MMBB 380. (Alt/yrs)

FST **WS513 Food Proteins and Enzymes** (2 cr). WSU FSHN 512. Chemistry/biochemistry of proteins/enzymes applied to food research and industry; protein functionality/enzyme technology application to food industry.

FST **527 Transmission Electron Microscopy** (3 cr). See FST J427/J527.

FST **WS529 Dairy Products** (4 cr). See FST WS-J429/WS-J529.

FST **WS532 Metabolism of Drugs and Toxins** (2 cr). WSU P/T 532. Pathways, enzymology and mechanisms of metabolism of drugs, environmental contaminants and other xenobiotics; pharmacological and toxicological impact of metabolism. (Alt/yrs)

FST **540 Biological Electron Microscopy** (4 cr). See FST J440/J540.

FST **541 Scanning Electron Microscopy** (3 cr). See FST J441/J541.

FST **564 Food Toxicology** (3 cr). See FST J464/J564.

FST **WS570 Advanced Food Technology** (3 cr). See FST J470/J570.

FST **WS572 Fundamentals of Oncology** (3 cr). WSU P/T 572. Thorough overview of cancer biology encompassing basic cellular and molecular mechanisms of carcinogenesis and tumor progression, treatment and prevention. (Alt/yrs)

FST **WS582 Food Process Engineering Design** (3 cr) (FST WS587). See FST J482/J582.

FST **WS597 Pharmacology and Toxicology Seminar** (1 cr, max 4). WSU P/T 597. Graded P/F.

# Foreign Languages and Literatures

**Richard M. Keenan, Chair, Dept. of Foreign Languages and Literatures (302 Admin. Bldg. 83844-3174; phone 208/885-6179; fax 208/885-5221; email forlang@uidaho.edu).**

**Vertically-related courses in this subject field are:** Chin 101-102; Fren 101-102 (or 104)-201-202; Germ 101-102-201-202; Grek 341-342-441-442; Japn 101-102-201-202; Latn 101-102; NezP 101-102-201-202; Russ 101-102-203-304; Span 101-102-201-202. In appropriate cases, with the approval of the chair of the Department of Foreign Languages and Literatures, any one of the following courses may be considered the terminal course in the vertical sequence: Fren 301-302; Germ 321-322; Span 301-302. Any upper-division Latin literature course may be used to receive vertically-related course credit for Latn 101-102.

**PREREQUISITE:** Each successive course in the vertical sequences of the elementary and intermediate language courses listed above has as prerequisite the successful completion of the previous course in the sequence with a grade of C or better. Prerequisite for upper-division language courses is the appropriate intermediate course with a grade of C or better or equivalent.

## COURSES OFFERED IN ENGLISH

No knowledge of foreign language required. May be used to fulfill the L&S humanities requirement.

FLEN **200** (s) **Seminar** (cr arr). Prereq: perm.

FLEN **204** (s) **Special Topics** (cr arr). Prereq: perm.

FLEN **211 Classical Mythology (Gods)** (2 cr). Intro to classical myths and legends and their survival in western literature and art.

FLEN **212 Classical Mythology (Heroes)** (2 cr). Intro to classical myths and legends and their survival in western literature and art.

FLEN **243 English Word Origins** (2 cr). Fundamental Latin and Greek words used in the humanities and natural science; emphasis on terminology of fields in which students are interested; knowledge of Greek or Latin is not required.

FLEN **299** (s) **Directed Study** (cr arr). Prereq: perm.

FLEN **307 The European Union** (3 cr). A cross-cultural examination of the European Union, its history, evolution, and current functioning; social, cultural, and political differences among union partners; economic structure and demographics; business culture.

FLEN **313 Modern French Literature in Translation** (3 cr). Major modern French authors in English translation; knowledge of French is not required.

FLEN **315 French Cinema** (3 cr). Genre, structure, style of representation fiction and non-fiction films of France and the Francophone world.

FLEN **323-324 German Literature in Translation** (3 cr). A maximum of 3 cr in FLEN 323-324 may be counted toward a major in German. Major German-language authors in English translation; knowledge of German is not required.

FLEN **ID363-ID364 Literature of Ancient Greece and Rome** (3 cr). WSU Clas 363/364. FLEN 363: Greece. FLEN 364: Rome. Ancient culture primarily through writings of Greek and Roman poets, playwrights, thinkers, and historians in English translation; may take the form of a survey or center on a theme or genre; lec, disc, and writing.

FLEN **391 Hispanic Film** (3 cr). Open to all students. A maximum of 3 cr in FLEN 391, 393, and 394 may be counted toward a major in Spanish. Genre, structure, and style of representative fiction and nonfiction films of Spain and Latin America. May not receive credit in both FLEN 391 and Span 307.

FLEN **392 Contemporary European Fiction Film** (3 cr). History of contemporary European fiction film from the 1960s to the present; emphasis on major genres, movements, and directors such as Godard, Bergman, Bertolucci, Fassbinder, Wenders, Antonioni, Jancso, Fellini. Three lec and 2 hrs of screening a wk. Prereq: Intr 126 or Comm 288 or perm.

FLEN **393 Spanish Literature in Translation** (3 cr). A maximum of 3 cr in FLEN 391, 393, and 394 may be counted toward a major in Spanish. Major Spanish-language authors in English translation; knowledge of Spanish is not required.

FLEN **394 Latin American Literature in Translation** (3 cr). A maximum of 3 cr in FLEN 391, 393, and 394 may be counted toward a major in Spanish. Major Spanish-language authors in English translation; knowledge of Spanish is not required. (Alt/yrs)

FLEN **395 Culture and Institutions of Latin America** (3 cr). Credit may be earned in either FLEN 395 or SPAN 306.

FLEN **400** (s) **Seminar** (cr arr). Prereq: perm.

FLEN **420** (s) **International Cinema and National Literatures** (3 cr, max 9). Open to all students. An examination of the connections between literary texts and the cinematic adaptations of them, exploring the processes that lead from one artistic form to the other; national focus of course will vary from semester to semester. Three lec and one evening screening a wk.

FLEN **441 Ancient Greek Civilization** (3 cr). Same as Hist 444. Survey of development of Greek civilization, BC 2000-BC 300.

FLEN **442 Civilization of Ancient Rome** (3 cr). Same as Hist 446. Survey of development of Roman civilization, BC 800-AD 500.

FLEN **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

FLEN **481 Women's Literature** (3 cr). See Engl 481.

FLEN **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

FLEN **499** (s) **Directed Study** (cr arr). Prereq: perm.

## CHINESE

Chin **WS101 Chinese First Semester** (4 cr). WSU Chin 101. *May be used as core credit in J-3-a.*

Chin **WS102 Chinese Second Semester** (4 cr). WSU Chin 102.

Chin **WS203 Chinese Third Semester** (4 cr). WSU Chin 203.

Chin **WS304 Chinese Intermediate** (4 cr). WSU Chin 304.

## FRENCH

Fren **101-102 Elementary French I-II** (4 cr). *Fren 101 may be used as core credit in J-3-a.* Credit not given for both Fren 101-102 and 104. Pronunciation, vocabulary, reading, spoken French, and functional grammar. Students with two or more years of high school French may not enroll in Fren 101, but may earn credit for Fren 101 by successfully completing a higher vertically-related course.

Fren **103** (s) **French Language Lab** (1 cr, max 4). Practice in listening comprehension, pronunciation, and grammatical structures. Graded P/F. Coreq: elementary or intermediate French (Fren 101-102, 104, 201-202).

Fren **104 Elementary French Reviewed** (4 cr). Not open for credit to students who have taken Fren 101 or equivalent in college. Review of subject matter covered in Fren 101-102. Prereq: two years of high school French or perm.

Fren **200** (s) **Seminar** (cr arr). Prereq: perm.

Fren **201-202 Intermediate French I-II** (4 cr). Reading, grammar review, speaking, and writing. Prereq: Fren 102.

Fren **204** (s) **Special Topics** (cr arr). Prereq: perm.

Fren **299** (s) **Directed Study** (cr arr). Prereq: perm.

Fren **301 Advanced French Grammar** (3 cr).

Fren **302 Advanced French Writing Skills** (3 cr). Recommended for students who wish to continue in upper-division French courses.

Fren **304 Connecting French Language and Culture** (4 cr). Practice of linguistic proficiencies within simulated cultural frames.

Fren **305 Reading French Texts** (3 cr). Development and practice of reading skills and strategies.

Fren **307 French Phonetics** (4 cr). Contrastive analysis; acquisition and corrective practice of sounds and intonation patterns; phonetic description and transcription.

Fren **308 Advanced French Conversation** (3 cr).

Fren **309 Practicum in Advanced Language Skills** (1 cr, max arr). Prereq: perm.

Fren **400** (s) **Seminar** (cr arr). Prereq: perm.

Fren **407** (s) **Topics in French Literature** (3 cr, max 9).

Fren **408** (s) **Topics in French Culture and Institutions** (3 cr, max 9).

Fren **415** (s) **Special Topics** (cr arr).

Fren **416** **French Business** (3 cr).

Fren **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Fren **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Fren **499** (s) **Directed Study** (cr arr). Prereq: perm.

Fren **501** (s) **Seminar** (cr arr). Prereq: perm.

Fren **502** (s) **Directed Study** (cr arr). Prereq: perm.

Fren **504** (s) **Special Topics** (cr arr). Prereq: perm.

## GERMAN

Germ **101-102** **Elementary German I-II** (4 cr). *Germ 101 may be used as core credit in J-3-a*. Pronunciation, vocabulary, reading, spoken German, and functional grammar.

Germ **103** (s) **German Language Lab** (1 cr, max 4). Practice in listening comprehension and conversational skills. Graded P/F. Coreq: elementary or intermediate German (Germ 101-102, 201-202).

Germ **200** (s) **Seminar** (cr arr). Prereq: perm.

Germ **201-202** **Intermediate German I-II** (4 cr). Review and practice of basic language skills; increased emphasis on reading and free discussion. Appropriate starting point for students with two or three yrs of high school German. Prereq: Germ 102 or equiv.

Germ **204** (s) **Special Topics** (cr arr). Prereq: perm.

Germ **299** (s) **Directed Study** (cr arr). Prereq: perm.

Germ **321** **German Conversation** (3 cr). Emphasis on developing proficiency in speaking and writing; discussion on topics of cultural interest. Prereq: Germ 202.

Germ **322** **German Grammar and Composition** (3 cr). Emphasis on writing skills and various kinds of writing; selective review of German grammar and usage. Prereq: Germ 202.

Germ **325-326** **German Culture and Institutions** (3 cr). May be taken in either order; survey of German cultural heritage from the earliest times to the present. Germ 325: development in the arts, philosophy, science, political and social thought through end of 19th century; history and political development of German nation. Germ 326: German society and political culture in 20th century; contemporary social and political institutions. Prereq or coreq: Germ 202.

Germ **327-328** **Survey of German Literature** (3 cr). May be taken in either order; intro course in study of German literature. Germ 327: chronological survey of literature from earliest times to beginning of 19th century. Germ 328: representative works of modern literature from 19th and 20th centuries. Prereq: Germ 202.

Germ **329** (s) **German Language Lab** (1 cr, max 2). Advanced aural comprehension; everyday conversational situations, radio and TV programming. Graded P/F. Prereq: perm.

Germ **400** (s) **Seminar** (cr arr). Prereq: perm.

Germ **404** (s) **Special Topics** (cr arr). Prereq: perm.

Germ **420** (s) **Readings in German Literature** (3 cr, max 9). For advanced students; focus on literary period, theme, genre, or work of a single author. Prereq: Germ 327 or 328, or perm.

Germ **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Germ **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Germ **499** (s) **Directed Study** (cr arr). Prereq: perm.

Germ **501** (s) **Seminar** (cr arr). Prereq: perm.

Germ **502** (s) **Directed Study** (cr arr). Prereq: perm.

Germ **504** (s) **Special Topics** (cr arr). Prereq: perm.

## ANCIENT GREEK

Grek **200** (s) **Seminar** (cr arr). Prereq: perm.

Grek **204** (s) **Special Topics** (cr arr). Prereq: perm.

Grek **299** (s) **Directed Study** (cr arr). Prereq: perm.

Grek **ID341-ID342 Elementary Greek** (4 cr). WSU Clas 341-342. *Grek 341 may be used as core credit in J-3-a.* Pronunciation, vocabulary, reading, and functional grammar.

Grek **ID349** (s) **Greek Language Lab** (1 cr, max arr). WSU Clas 349. A maximum of two credits may be earned in basic skills. Graded P/F. Prereq: perm.

Grek **400** (s) **Seminar** (cr arr). Prereq: perm.

Grek **404** (s) **Special Topics** (cr arr). Prereq: perm.

Grek **ID441-ID442** (s) **Intermediate Greek** (4 cr, max arr). WSU Clas 441-442. Readings in classical Greek prose and poetry.

Grek **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Grek **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Grek **499** (s) **Directed Study** (cr arr). Prereq: perm.

## JAPANESE

Japn **ID101-ID102 Elementary Japanese I-II** (4 cr). WSU Japn 101-102. *Japn 101 may be used as core credit in J-3-a.*

Japn **103** (s) **Japanese Language Lab** (1 cr, max 4). Practice in listening comprehension and conversational skills. Graded P/F. Coreq: Japn 101, 102, 201, or 202.

Japn **ID201-ID202 Intermediate Japanese I** (4 cr). WSU Japn 203, 304.

## LATIN

Latn **101-102 Elementary Latin I-II** (4 cr). *Latn 101 may be used as core credit in J-3-a.* Pronunciation, vocabulary, reading, composition, and functional grammar.

Latn **103** (s) **Latin Language Lab** (1 cr, max 4). Elementary- and intermediate-level skills. Graded P/F. Prereq: perm.

Latn **200** (s) **Seminar** (cr arr). Prereq: perm.

Latn **204** (s) **Special Topics** (cr arr). Prereq: perm.

Latn **299** (s) **Directed Study** (cr arr). Prereq: perm.

Latn **ID365-ID366 Survey of Latin Literature** (3 cr). WSU Clas 365-366. From early Latin to the Middle Ages.

Latn **ID369** (s) **Latin Language Lab** (1 cr, max arr). WSU Clas 369. Advanced-level expressive skills. Graded P/F. Prereq: perm.

Latn **400** (s) **Seminar** (cr arr). Prereq: perm.

Latn **404** (s) **Special Topics** (cr arr). Prereq: perm.

Latn **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Latn **ID461-ID462** (s) **Latin Literature of the Empire** (3 cr, max 9). WSU Clas 461-462.

Latn **ID463-ID464** (s) **Latin Literature of the Republic** (3 cr, max 9). WSU Clas 463-464.

Latn **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Latn **499** (s) **Directed Study** (cr arr). Prereq: perm.

## NEZ PERCE

NezP **ID&LC101 Elementary Nez Perce I** (4 cr). LCSC NP 101. Pronunciation, vocabulary, reading, spoken Nez Perce, and functional grammar.

NezP **ID&LC102 Elementary Nez Perce II** (4 cr). LCSC NP 102. Pronunciation, vocabulary, reading, spoken Nez Perce, and functional grammar. Prereq: NezP 101.

NezP **ID&LC201 Intermediate Nez Perce I** (4 cr). LCSC NP 201. Reading, grammar review, speaking, and writing. Prereq: NezP 102.

NezP **ID&LC202 Intermediate Nez Perce II** (4 cr). LCSC NP 202. Reading, grammar review, speaking, and writing. Prereq: NezP 201.

## RUSSIAN

Russ **WS101 First Semester Russian** (4 cr). WSU Rus 101. *May be used as core credit in J-3-a.*

Russ **WS102 Second Semester Russian** (4 cr). WSU Rus 102.

Russ **WS203 Third Semester Russian** (4 cr). WSU Rus 203.

Russ **WS304 Intermediate Russian** (4 cr). WSU Rus 304.

Russ **WS305 Russian Conversation** (1 cr). WSU Rus 305.

Russ **WS307 Speaking Proficiency** (3 cr). WSU Rus 307.

Russ **WS317 Contemporary Russian Culture and Society** (3 cr). WSU Rus 317.

Russ **WS323 Masterpieces of Russian Literature in Translation** (3 cr). WSU Rus 323.

Russ **WS360 Russian Film** (3 cr). WSU Rus 360.

Russ **WS430 St. Petersburg** (3 cr). WSU Rus 430.

## SCANDINAVIAN

Scan **WS101 First Semester Danish** (4 cr). WSU Scand 101.

Scan **WS102 Second Semester Danish** (4 cr). WSU Scand 102.

Scan **WS323 Masterpieces of Scandinavian Literature in Translation** (3 cr, max 6). WSU Scand 323.

## SPANISH

Span **101-102 Elementary Spanish I-II** (4 cr). *Span 101 may be used as core credit in J-3-a.* Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar.

Span **103** (s) **Spanish Language Lab** (1 cr, max 4). Practice in listening comprehension and conversational skills. Graded P/F. Coreq: elementary or intermediate Spanish (Span 101-102 or 201-202).

Span **200** (s) **Seminar** (cr arr). Prereq: perm.

Span **201-202 Intermediate Spanish I-II** (4 cr). Reading, grammar review, speaking, and writing. Prereq: Span 102.

Span **204** (s) **Special Topics** (cr arr). Prereq: perm.

Span **299** (s) **Directed Study** (cr arr). Prereq: perm.

Span **302 Advanced Composition** (3 cr). Recommended for prospective teachers of Spanish. Prereq: Span 202 or perm.

Span **303 Spanish Conversation** (3 cr). Further development of speaking skills for advanced students; discussion on topics of current cultural interest. Prereq: Span 302 or perm.

Span **304 Spanish Phonetics** (3 cr). Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; transcription of prose and poetry. Prereq: Span 202 or equiv.

Span **305 Culture and Institutions of Spain** (3 cr). Prereq: Span 302 or perm.

Span **306 Culture and Institutions of Latin America** (3 cr). Credit may be earned in either FLEN 395 or Span 306. Prereq: Span 302 or perm.

Span **ID307 Hispanic Film** (3 cr). WSU Span 391. Genre, structure, and style of representative fiction and nonfiction films of Spain and Latin America. May be taken concurrently with Span 202 with perm of instructor; may not receive credit for both Span 307 and FLEN 391.

Span **308 Proficiency in Reading** (3 cr). Issues and methods of literary analysis; emphasis on reading, writing, and speaking skills in the target language. Prereq: Span 302 or perm.

Span **309 Spanish for Business** (3 cr). Emphasis on business Spanish. Recommended for students in Foreign Language Business Option. Prereq: Span 302 or perm.

Span **310 Spanish for Professions** (3 cr). Spanish for law enforcement, tourism, and health professions. Prereq: Span 302 or perm.

Span **311 Readings: Hispanic News Via Internet** (3 cr). Prereq: Span 302 or perm.

SPAN **312 Readings: Hispanic Literatures of the U.S.** (3 cr). Prereq: Span 302 or perm.

Span **389 Spanish Language Lab** (1 cr, max arr). Advanced conversational skills. Graded P/F. Prereq: perm.

Span **400** (s) **Seminar** (cr arr). Prereq: Span 302 or perm.

Span **401 Readings: Spanish Literature** (3 cr). Prereq: Span 302 or perm.

Span **402 Readings: Spanish American Literature** (3 cr). Prereq: Span 302 or perm.

Span **404** (s) **Special Topics** (cr arr). Prereq: Span 302 or perm.

Span **410 Spanish for Teachers** (2 cr). Language and culture; pronunciation and diction.

Span **412 Spanish Short Fiction** (3 cr). The short story in 19th- and 20th-century Spain. Prereq: Span 302 or perm.

Span **413 Spanish American Short Fiction** (3 cr). The short story in 19th- and 20th-century Spanish America. Prereq: Span 302 or perm.

Span **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Span **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Span **499** (s) **Directed Study** (cr arr). Prereq: perm.

Span **501** (s) **Seminar** (cr arr). Prereq: perm.

Span **502** (s) **Directed Study** (cr arr). Prereq: perm.

Span **504** (s) **Special Topics** (cr arr). Prereq: perm.

## GENERAL COURSES

FL **200** (s) **Seminar** (cr arr). Prereq: perm.

FL **204** (s) **Special Topics** (cr arr). Prereq: perm.

FL **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL **400** (s) **Seminar** (cr arr). Prereq: perm.

FL **404** (s) **Special Topics** (cr arr). Prereq: perm.

FL **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Forest Products

**Thomas M. Gorman, Head, Dept. of Forest Products (102 CNR Bldg. 83844-1132; phone 208/885-9663).**

**PREREQUISITE:** Courses in this subject field above 299 are not open to any undergraduate student who is on academic probation.

Note: Courses numbered ForP 460-472 (except 470) are taught at the University of Minnesota. UM is on the quarter system; however, credits are listed in this catalog in equivalent semester hours.

ForP **100 Forest Products Issues and Industries** (1 cr). Critical issues facing the forest products industry, manufacturing processes for wood products, and professional career opportunities. One lec or one half-day lab trip a wk (4-6 lab trips to local forest products manufacturing sites).

ForP **WS201 Introduction to Construction** (2 cr). WSU Cst M 201.

ForP **203** (s) **Workshop** (cr arr). Prereq: perm.

ForP **204** (s) **Special Topics** (cr arr). Prereq: perm.

ForP **230 Forest Land Measurements I** (1 cr). Distance, precision, and allowable error; slope and horizontal distance concepts; field book; pacing, chaining, and taping; direction measurements with hand-held and staff compasses; declination and area calculation; traversing and traverse closure. Two lec and one 3-hr lab a wk for 5 wks. Prereq: Math 143 or equiv.

ForP **231 Forest Land Measurements II** (1 cr). Vertical distance concepts; traverse closure software; contour mapping and mapping software; triangulation applications; public land surveying and the application and use of levels, theodolites, transits, and other tripod instruments. Two lec and one 3-hr lab a wk for 5 wks. Prereq: ForP 230.

ForP **232 Forest Land Measurements III** (1 cr). Advanced use and application of instruments including electronic distance measurement and global positioning systems; stadia; curve geometry and layout; coordinate system; road plan and profile. Two lec and one 3-hr lab a wk for 5 wks. Prereq: ForP 231.

ForP **250 Principles of Forest Products** (2 cr). Wood in our society, effect of silviculture on wood properties, harvesting and transportation, wood manufacturing technologies, wood products and applications, and future directions in the wood industry. One or two optional half-day field trips.

ForP **ID277 Wood Structure and Identification** (3 cr). WSU NATRS 321. Anatomy and chemical composition of commercial wood species; gross and minute structural characteristics of wood leading to identification. Prereq: ForP 250 or perm.

ForP **299** (s) **Directed Study** (cr arr). Prereq: perm.

ForP **302 Wildland Field Ecology** (2 cr). Same as Fish/For/Rnge/RRT/WLF 302. Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235 and For/Rnge/WLF 221.

ForP **336 Introduction to the Pulp and Paper Industry** (1 cr). Chip supply, quality, and handling; pulping and bleaching; pollution abatement; papermaking; and paper characteristics and utilization. Three half-day field trips.

ForP **337 Physical and Mechanical Properties of Wood** (3 cr). Properties of wood as they relate to physical behavior and product application; other related topics include biodeterioration, machining and adhesive technology, and strength considerations. Prereq: ForP 277 or perm.

ForP **365 Wood Building Technology** (3 cr). Basic structural design including elementary statics and principles and technology of wood structural design. Prereq: Phys 100, Phys 111 or perm.

ForP **400** (s) **Seminar** (cr arr). Prereq: perm.

ForP **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

ForP **403** (s) **Workshop** (cr arr). Prereq: perm.

ForP **404** (s) **Special Topics** (cr arr). Prereq: perm.

ForP **405** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

ForP **J410/J510 Wood Properties, Processes, and Uses** (1-2 cr). Open to non-majors only. Physical, mechanical, and chemical properties of wood and wood products; timber harvesting technologies; and issues in use of wood products. Additional projects/assignments reqd for grad cr. Graded P/F. Five days of workshop, including field trip.

ForP **420 Pulp and Paper Technology** (3 cr). Technological overview of chemical and physical processes involved in conversion of wood into paper. Two or three optional half-day field trips. Prereq: organic chemistry or perm.

ForP **ID425 Forest Products Marketing** (3 cr). WSU NATRS 420/520. Aspects of marketing from an industrial perspective; survey of domestic and international forest products marketing; marketing research in forest products; current issues and problems in marketing forest products. Prereq: ForP 250 or perm. (Alt/yrs)

ForP **ID430 Forest Engineering and Harvesting** (3 cr). WSU NATRS 320. Survey of logging equipment capabilities; intro to cable logging systems, road layout, and design; cost analysis of logging systems; development of road and logging plans. Three days of field trips. Prereq: ForP 230 or perm.

ForP **ID431 Production and Cost Control in Forest Industry** (3 cr). WSU NATRS 439. Intro to production planning and cost control for timber harvesting and forest products processing operations; development and application of machine rates and system production rates; breakeven analysis; machine replacement; cash flow in investment decisions; use of microcomputers in analysis. Prereq: ForP 250 or equivalent or perm. (Alt/yrs)

ForP **ID432 Low Volume Forest Roads** (3 cr). WSU NATRS 432. Road classification; design of forest roads; construction techniques; costing, environmental considerations, design project. Three days of field trips. Coreq: ForP 430. (Alt/yrs)

ForP **ID433 Forest Tractor System Analysis** (3 cr). WSU NATRS 433. Planning, layout, and cost analysis of forest tractor systems, production estimating, machine capabilities, and options; layout project. Three days of field trips. Prereq: ForP 430 or equiv. (Alt/yrs)

ForP **ID434 Cable Systems Analysis** (3 cr). WSU NATRS 434. Layout, planning, and design for cable logging systems; analysis of forces involved in cable logging; crew and terrain requirements; layout and design project; cost and equipment analysis. Three 1-day field trips. Prereq: ForP 430 or equiv. (Alt/yrs)

ForP **436 Wood Composites** (3 cr). Raw material, processes, properties, and markets for a number of wood composites made of particles and fibers. One full-day field trip. Prereq: ForP 277. (Alt/yrs)

ForP **437 Wood as a Structural Material** (2 cr). Applications of mechanical behavior to wood and wood composites; structural consideration and computer analysis of wood materials, including engineered products, panels, trusses. Prereq: ForP 337 or 365.

ForP **438 Wood Chemistry and Adhesives** (3 cr). Aspects of wood chemistry in relation to its application, including wood adhesive interfaces. Two lec and one 3-hr lab a wk. Prereq: Chem 101 and ForP 277. (Alt/yrs)

ForP **444 Lumber Manufacturing** (3 cr). Raw materials, production methods, drying product specifications, and grading for sawn wood products; plant layout, machines, and systems analysis; plant tours. Two lec and one 5-hr lab a wk. Prereq: ForP 277 or perm.

ForP **450 Wood Deterioration and Preservation** (2 cr). Thermal, biotic, and abiotic agents that cause wood deterioration; biological control methods; design considerations; wood preservatives and preservative systems; treatability of wood; treatment mechanics; pollution control systems; preservative effectiveness; standards; environmental concerns and law. Prereq: ForP 277 or perm.

ForP **WS455 Construction Scheduling** (3 cr). WSU Cst M 455. Precedence and arrow networking techniques for construction; fundamentals of scheduling computations, time-cost adjustments, resource leveling; computer scheduling software overview.

ForP **460 Wood Industry Tours** (1.3 cr; see headnote). Visits to a number of firms involved with various facets of forest products industry.

ForP **461 Wood Fluid Relationships** (2 cr; see headnote). Moisture in wood and its relationship to density and specific gravity, shrinking and swelling, electrical properties, strength properties, thermoconductivity, sorption isotherms, dimensional stabilization, permeability and diffusion.

ForP **462 Analysis of Production Systems** (2 cr; see headnote). Engineering and economic analysis of manufacturing and distribution systems for wood-based products; material balances, equipment selection, economic analysis, and presentation techniques.

ForP **463 Pulp and Paper Process Lab** (2 cr; see headnote). Chemical and mechanical pulping, pulp preparation, secondary fiber, de-inking, wet end additives; lab problems and exercises supplemented by lec. One lec and one hr of lab a wk.

ForP **464 Pulp and Paper Process Calculations** (2.7 cr; see headnote). Chemical and physical process calculations; steady and unsteady state material and energy balances applied to pulping and papermaking processes.

ForP **465 Pulp and Paper Process Operations** (2.7 cr; see headnote). Application of principles of momentum, heat, and mass transfer to unit operations in pulp and paper industry; fluid transport; filtration; sheet forming, sedimentation, heat exchange, evaporation, gas absorption and stripping; distillation, leaching extraction, crystallization, humidification, and drying.

ForP **466 Paper Engineering Lab** (1.3 cr; see headnote). Experiments designed to illustrate principles of momentum, heat, and mass transfer using the pilot-plant paper machine and coater.

ForP **467 Coated Product Development** (1.3 cr; see headnote). Coating process and products (primarily paper); theory, techniques, and procedures for formulating and applying coatings; properties and uses of coated products.

ForP **469 Surface and Colloid Chemistry of Papermaking** (2 cr; see headnote). Principles of surface and colloid chemistry applied to basic problems in pulp and paper manufacturing operations and products uses.

ForP **470 Interdisciplinary Natural Resource Planning** (3 cr). Same as Fish/For/Rnge/RRT/WLF 470. Examines how ecological and social sciences are interrelated and how they influence natural resource decisions; students learn how to work effectively in teams to make sound management decisions and communicate those decisions to a variety of constituents. Three hrs of lec and three hrs of recitation a wk; one 2-day field trip. Prereq: Sr standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302 or RRT 306; or perm.

ForP **471 Pulp and Paper Process Dynamics and Control** (2 cr; see headnote). Theory and practice of process control in the pulp and paper industry: sensors, control equipment and algorithms, final cost elements; applications to industrial pulp and paper manufacturing, available hardware and software.

ForP **472 Biological and Environmental Science of Pulp and Paper** (2 cr; see headnote). Biology and chemistry of the pulp and paper processes are related to their impacts on the environment; treatment of process effluents and discharges, government regulations and industry compliance; theory, design, and operation of equipment for the treatment or prevention of environmental impact.

ForP **WS475 Estimating I** (3 cr). WSU Cst M 470.

ForP **J477/J577 Forest Products Business Management** (3 cr). Business plans for primary and secondary wood products processing businesses; preliminary technical and economic modeling of wood products manufacture; process systems analysis; commercial aspects, principles and terminology of the international timber trade. Graduate students in ForP 577 serve as group leaders on field projects. One field lab. Prereq: ForP 277, 444 or perm.

ForP **480 Senior Project** (2 cr). Case studies involving analysis of forest industry problems and issues; open-ended projects involving wood design and construction; problems addressed individually or in project teams. Field trips. Prereq: Sr standing.

ForP **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Same as Fish/For/Rnge/RRT/WLF 485. Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

ForP **496 Forest Products Seminar** (1 cr). Contemporary problems relevant to the manufacture of wood products.

ForP **497 Senior Thesis** (2-4 cr, max 4). Same as Fish/For/Rnge/RRT/WLF 497. Independently plan and conduct a thesis project; write and defend the thesis under supervision of an advisor. Prereq: Sr standing and minimum 3.20 GPA or perm.

ForP **498 Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public agency or private company. Required for students in the Forest Products Business Management option and for cooperative education students. Graded P/F. Prereq: perm of advisor.

ForP **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing, GPA 2.5, or perm.

ForP **500 Master's Research and Thesis** (cr arr).

ForP **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of forest products industries; presentation of individual studies on assigned topics. Prereq: perm.

ForP **502** (s) **Directed Study** (cr arr). Prereq: perm.

ForP **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

ForP **504** (s) **Special Topics** (cr arr). Prereq: perm.

ForP **505** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

ForP **510 Wood Properties, Processes, and Uses** (1-2 cr). See ForP J410/J510.

ForP **522 Advanced Forest Roads** (3 cr). Field layout of L-line in a forest setting; curves; slope staking and clearing limits; lab analysis of soil for subgrade; lab analysis of gravel for surfacing; stability analysis; costing of alternatives. Prereq: ForP 430. (Alt/yrs)

ForP **534 Advanced Techniques of Timber Harvesting Analysis** (3 cr). Layout, planning, and cost analysis of timber harvesting systems using available computer analysis techniques and program; analysis of road cost and stability problems; cost control of logging operations. Two lec and one 3-hr lab a wk; three 1-day field trips. Prereq: ForP 430 or equivalent or perm. (Alt/yrs)

ForP **WS535 Nondestructive Testing of Structural Materials** (3 cr). WSU C E 536.

ForP **541 Issues in Renewable Natural Resource Industries** (2). Overview of renewable natural resource base industries with focus on forest products, range livestock, and tourism; review of historical and economic base for industries and current social, biological, and economic issues of importance.

ForP **545 Forest Ecosystem Management: Practices and Issues** (2 cr). Issues associated with integrated forest practices that can sustain forest products, restore damaged ecosystems, and maintain natural processes, including the silvicultural systems, harvest methods, and prescribed fire applications suitable for low-impact management in forest ecosystems.

ForP **550** (s) **Advanced Wood Technology** (1-3 cr, max 6). Advanced wood utilization and technology to include topics such as wood protection and preservation, advanced drying and moisture movement, gluing and finishing, engineered and composite wood products, energy; specific topics change yearly. May be repeated for cr to a maximum of 6 cr with perm and different topic. One to three days of field trips. Prereq: ForP 337 or perm.

ForP **577 Forest Products Business Management** (3 cr). See ForP J477/J577.

ForP **597** (s) **Practicum** (cr arr). Prereq: perm.

ForP **598** (s) **Internship** (cr arr). Prereq: perm.

ForP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

ForP **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Forest Resources

**Jo Ellen Force, Head, Dept. of Forest Resources (204 CNR Bldg. 83844-1133; phone 208/885-7952; e-mail fores@uidaho.edu).**

**PREREQUISITE:** Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

For **102 Introduction to Forest Management** (1 cr). Intro to forestry, current management issues, timber and non-timber resources, educational and professional opportunities.

For **200** (s) **Seminar** (cr arr). Prereq: perm.

For **221 Natural Resources Ecology** (3 cr). Same as Rnge/WLF 221. Principles of plant and animal ecology. Major topics covered in the course include the physical environment, how organisms interact with each other and their environment, evolutionary processes, population dynamics, communities, energy flow and ecosystems, conservation biology, and human influences on ecosystems. Recommended preparation: Biol 202 and 213. Prereq: Biol 111 or 112, or perm.

For **235 Society and Natural Resources** (3 cr). Same as RRT 235. The social sciences applied to natural resources management; relationship between natural resources and human socioeconomic systems; analysis of resource issues.

For **270 Principles of Forest Ecosystem Management** (2 cr). Forest resources, regions, and management objectives; silvicultural principles and practices employed in management of forest ecosystems; interrelations between uses of forest land. Two 1-day field trips.

For **274 Forest Measurement Techniques** (1 cr). Practical techniques in measuring forest land and in measuring and inventorying forest resources. Two hrs of lec and one 3-hr lab a wk for 5 wks. Prereq: course in trigonometry and college algebra.

For **299** (s) **Directed Study** (cr arr). Prereq: perm.

For **302 Wildland Field Ecology** (2 cr). Same as Fish/ForP/Rnge/RRT/WLF 302. Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks of all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235 and For/Rnge/WLF 221.

For **ID&WS306 Wildland Resource Conservation** (3 cr). WSU NATRS 303. Not open to majors in the dept. Concepts of forest and rangeland ecology; major resources of wildlands, principles of conservation and management application to wildlands.

For **ID&WS307 Wildland Resource Conservation Lab** (1 cr). WSU NATRS 303. Descriptive survey of renewable natural resources; emphasis on Idaho's flora and fauna. Two hrs of lab a wk; three days of field trips. Coreq: For 306.

For **320 Dendrology** (3 cr). Identification, classification, distribution, and associations of the important tree species of the U.S.; important regional shrubs. Two lec and two 2-hr labs a wk; one 1-day field trip. Prereq: Biol 203 or perm.

For **324 Silviculture I** (2 cr). Natural and artificial regeneration of forest ecosystems; management of the gene pool, selection of seed source and stock type; site preparation methods to establish regeneration. One lec and one 4-hr lab a wk. Prereq: For 270, For/Rnge/ForP/WLF/Fish/RRT 302 or RRT 306, and Soil 205, 206.

For **330 Forest Ecosystem Processes** (3 cr). Chemical, physical, and physiological processes that determine how trees and forests function; emphasis on carbon budgets, productivity, consequences of forest management, and global climate change. Two lec and one 2-hr lab a wk; one field trip. Prereq: Soil 205, Math 143 or 160, high school physics or Phys 100 or 111, or perm.

For **361 Farm and Natural Resource Appraisal** (3 cr). See AgEc 361.

For **375 Airphoto Interpretation and Mapping** (3 cr). Methods and techniques of obtaining quantitative and qualitative spatial information from aerial photographs, maps, and the Global Positioning System for input into geographic information systems and planning processes for natural resources land management. Two lec and one 2-hr lab a wk. Prereq: college algebra.

For **383 Economics for Natural Resource Managers** (3 cr). Same as AgEc 383. Role of economic forces in resource analysis and conservation; planning of forest resource use by the firm and society. Prereq: Econ 202; Math 160; For/RRT 235, or perm.

For **394 Quantitative Resource Analysis** (3 cr) (For 294). Solving quantitative problems in a natural resources management context using statistical sampling applications and computer software. Two lec and one 2-hr lab a wk. Prereq: Math 160 or 170, Stat 251.

For **398** (s) **Renewable Natural Resources Internship** (cr arr). Same as Fish/Rnge/WLF 398. Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

For **400** (s) **Seminar** (cr arr). Prereq: perm.

For **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

For **403** (s) **Workshop** (cr arr). Prereq: perm.

For **404** (s) **Special Topics** (cr arr). Prereq: perm.

For **408 Community and Urban Forestry** (2 cr) (For 208). Community or urban environment as affected by its included forest; forest components, benefits, liabilities, values, ordinances, and issues; management by selection, design, planting, care, and maintenance.

For **J412/J512 Artificial Regeneration** (2 cr). Methods of cone collection, seed extraction, and storage; seedling procurement contracts; seedling handling and storage; planting contracts; regeneration surveys; plantation failure diagnosis. Cr earned in For 512 by preparation of paper on approved regeneration topic. One lec and one 3-hr lab a wk. Prereq: perm. (Alt/yrs)

For **ID-J413/ID-J513 Forest Nursery Management** (2 cr). WSU NATRS 413/513. Forest nursery design considerations; seed processing and quality; nursery equipment and cultural practices; seedling quality. Cr earned in For 513 by preparation of paper on nursery design and growing regimes for assigned species. Two 1-day field trips. (Alt/yrs)

For **WS415 Airphotos and Geomorphology** (3 cr). WSU SoilS 474.

For **ID-J420/ID-J520 Tropical Dendrology/Ecology** (3 cr). WSU NATRS 422/522. Distribution, physiognomy, and climate of world tropical and subtropical vegetation types; identification, ecology, and uses of major pantropical trees and associated vegetation. Cr earned in For 520 by preparation of paper on a specific genus or species. Two lec and 4 hrs of lab a wk. Prereq: perm. (Alt/yrs)

For **423 Forest Community Ecology** (1 cr). Graded P/F. Principles of synecology related to vegetation classification and interpretation of structural and compositional change in communities following disturbance; practice in plant association/habitat type delineation as applied in western U.S. Accelerated first nine wks; eight lec periods and four 8-hr field trips. Prereq: For 221.

For **424 Silviculture II** (2 cr). Methods and techniques for manipulation of forest ecosystems to meet management objectives; intermediate stand tending; forest health, landscape silviculture, and prescription writing. One lec and one 4-hr lab a wk. Prereq: For 324 or perm.

For **426 Wildland Fire Management and Ecology** (3 cr). Integrated fire-related biological, ecological, physical, and economic information for land managers; autecology and synecology of plant and animal species in wildlands; natural role of fire; fire as a management tool; application to current issues. Two days of field trips. Prereq: For/Rnge/WLF 221.

For **427 Prescribed Burning Lab** (2 cr). Fire use planning with emphasis on preparation, execution, and evaluation. Eight days of field trips. Prereq: For 426, Sr standing, and perm. (Alt/yrs)

For **429 Landscape Ecology** (2 cr). Ecological relationships and conservation issues for biotic communities in watersheds, including spatial and temporal dynamics and patterns, and importance of landscapes in maintenance of ecosystem diversity and function. One field trip. Prereq: For/Rnge/WLF 221. (Spring only)

For **455 Forest Soils: Morphology, Function, and Spatial Dynamics** (3 cr). See Soil 455.

For **J458/J558 Agroforestry** (3 cr). See Rnge J458/J558.

For **J462/J562 Watershed Management** (2 cr). Influence of land management practices on streamflow, water quality, and riparian habitat. Additional projects/assignments reqd for grad cr. Two days of field trips. Prereq: For/Rnge/WLF 221 or perm.

For **466 Diseases and Insects of Woody Plants** (3 cr). Fundamentals of pathology and entomology of woody plants; labs focus on diagnosis. Two lec and 3 hrs of lab a wk; two pathology and two entomology field trips. (Spring only)

For **470 Interdisciplinary Natural Resource Planning** (3 cr). Same as Fish/ForP/Rnge/RRT/WLF 470. Examines how ecological and social sciences are interrelated and how they influence natural resource decisions; students learn how to work effectively in teams to make sound management decisions and communicate those decisions to a variety of constituents. Three hrs of lec and three hrs of recitation a wk; one 2-day field trip. Prereq: Sr standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302 or RRT 306; or perm.

For **472 Remote Sensing of the Environment** (3-4 cr). Current airborne and satellite systems, data acquisition on ground and from remote locations, instrumentation, imagery interpretation and digital analysis, applications for natural resource management. One additional two-hour lab per week for fourth credit.

For **474 Forest Inventory** (3 cr). Principles of cruise design and implementation for timber and other products; growth and yield, fixed plot, and 3P sampling. Two lec and 2 hrs of lab a wk. Prereq: For 274, 394, and perm.

For **476 Forestry Project Evaluation** (3 cr). Applied financial and economic analyses of site-level integrated resources decisions in forested ecosystems; commodity and intangible resource valuation; optimal management regimes of timber and non-commodity resources; joint production feasibility; links to forest planning and international development; forest taxation. Three hrs of lec and 1 hr of application lab a wk. Prereq: For 270, 383, or perm.

For **ID477 Integrated Forest Management Models** (3 cr). WSU NATRS 440. Applied mathematical programming techniques for simultaneous multiple product, intertemporal and interspatial decisions in forest planning; procedures to coordinate site projects, area analysis, strategic forest plans, and regional forest resource policies. Three hrs of lec and 1 hr of applications lab a wk. Prereq: For 270, 294, 383 or perm.

For **479 Forest Contracting** (2 cr). Basic principles and practical application of contracts for a range of natural resource management activities including timber sales, site preparation, and tree planting; on-site contract inspection, bonding, and insurance. Two 1-1/2 hr lec/lab a wk; three 1/2-day field trips. Prereq: Sr standing. (Alt/yrs)

For **480 Senior Project Planning** (1 cr). Planning, writing, and talking about a proposed senior project (thesis or internship); taken before or concurrently with 485 or 497. Prereq: Sr standing.

For **481 Senior Project Presentation** (1 cr). Reporting and presenting the senior project (thesis or internship); taken after or concurrently with 485 or 497. Prereq: For 480.

For **484 Forest Policy and Administration** (2 cr). Evaluation of land and forest problems and policies in the U.S.; analysis of current conditions and policies; historical development of governmental and private agencies concerned with the administration of forest conservation program.

For **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Same as Fish/ForP/Rnge/RRT/WLF 485. Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

For **J496/J596 Field Studies in Tropical Ecology and Dendrology** (3 cr). Extensive three-wk field course in the tropics; emphasis on primary and secondary vegetation types, land-use problems, utilization of pantropical trees. Graded P/F. Additional projects/assignments reqd for grad cr. Prereq: For J420/J520 and perm.

For **497** (s) **Senior Thesis** (2-4 cr, max 4). Same as Fish/ForP/Rnge/RRT/WLF 497. Independently plan and conduct a thesis project; write and defend the thesis under supervision of an advisor. Prereq: Sr standing and minimum 3.20 GPA or perm.

For **498** (s) **Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public or private agency. Required for cooperative education students. Prereq: perm of dept.

For **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing, GPA 2.5, and perm.

For **500 Master's Research and Thesis** (cr arr).

For **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

For **502** (s) **Directed Study** (cr arr). Prereq: perm.

For **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

For **504** (s) **Special Topics** (cr arr). Prereq: perm.

For **ID510 Fundamentals of Research** (3 cr). WSU BSysE 510. Same as CS 507. The research process and the graduate research project; objectives, techniques, and challenges; scientific method and the design process; use of the literature; creativity; writing and speaking about research; preparation of a research proposal.

For **WS511 Introduction to Population Genetics** (3 cr). WSU Bio S 519.

For **512 Artificial Regeneration** (2 cr). See For J412/J512.

For **ID513 Forest Nursery Management** (2 cr). See For J413/J513.

For **ID520 Tropical Dendrology/Ecology** (3 cr). See For J420/J520.

For **523 Landscape Silviculture** (3 cr). Theoretical basis for application of silvicultural systems to forested landscapes; practical exercises to develop silvicultural practices designed to change forest patterns, processes, and dynamics; linkages to sustainable, functioning forest ecosystems at the landscape level. Two days of field trips. Prereq: silviculture and forest protection courses or equiv.

For **524 Quantitative Silviculture** (2 cr). Quantifying site quality, measures of stand density, predicting forest growth and yield, simulation models, and use of simulation models in silvicultural prescriptions. (Alt/yrs)

For **525 Advanced Silviculture** (3 cr). Silvicultural systems and cultural practices; design of silvicultural prescriptions. Term project, field labs, and two days of field trips. Prereq: For 424 and/or perm. (Alt/yrs)

For **526 Fire Ecology** (3 cr). Fire-related ecology of plant and animal species in wildlands; effects of fire occurrence and suppression on physical environment, landscapes, and processes in both natural and managed ecosystems. Two days of field trips. Prereq: general ecology course. (Alt/yrs)

For **527 Landscape Ecology of Forests and Rangelands** (2-3 cr). Ecological relationships of biotic communities in heterogeneous environments, spatial and temporal patterns, importance of landscapes in maintenance of ecosystem diversity and function. One 2-hr lecture/discussion a week based on extensive reading of current literature and case studies. In addition, those students taking 3 credits will meet an additional hour a week, focusing on quantitative landscape analysis, and they will participate in a 2-day field trip. Prereq: upper-division plant or animal ecology. (Spring only)

For **ID528 Forest Gene Resource Management** (3 cr). Same as Gene 528. WSU NATRS 527. Genetic principles applied to forest ecosystem management; the origin and functions of genetic diversity; implications of silvicultural practices and ecosystem management on gene pools; management for genetic change; genetic considerations in conservation of forest ecosystems. One 3-hr discussion a wk based on readings of current and classic literature; two to three days of field trips. Prereq: For 270 or perm. (Alt/yrs)

For **540 Conservation Genetics** (3 cr). Basic principles of population genetics and phylogenetics and their applications to the field of conservation genetics and natural resource management; case studies and examples from current literature; topics include genetic diversity, inbreeding, population structure, gene flow, genetic drift, molecular phylogenetics, and hybridization.

For **545 Forest Ecosystem Management: Practices and Issues** (2 cr). Issues associated with integrated forest practices that can sustain forest products, restore damaged ecosystems, and maintain natural processes, including the silvicultural systems, harvest methods, and prescribed fire applications suitable for low-impact management in forest ecosystems.

For **549 Tropical Soils** (3 cr). See Soil 549. (Alt/yrs)

For **550 GIS Topics in Ecosystem Analysis** (2 cr). Evaluation and discussion of current issues regarding the techniques, instrumentation, and application of GIS technology in ecosystem analysis. Prereq: experience with ARC/INFO or other GIS and perm.

For **558 Agroforestry** (3 cr). See Rnge J458/J558.

For **562 Watershed Management** (2 cr). See For J462/J562.

For **566 Ecology and Genetics of Forest Fungi** (3 cr). Ecology and genetics of forest fungi with emphasis on pathogens of woody plants of North America. Two lec and one lab a wk; one field trip. Prereq: For 466 or equiv. (Spring only)

For **ID&WS572 Spatial and Biophysical Modeling** (3 cr). WSU SoilS 574. Development of concepts, techniques, and methods for the fusion of remote sensing, GIS and biogeochemical modeling techniques for analyzing energy and material pathways and cycles; review latest methods for temporal and spatial scaling of datasets and models to develop and test hypotheses for understanding forest ecosystem structure and function.

For **573 Advanced Aerial Photo Interpretation** (2-3 cr). Project planning; interpretation of vegetation, landforms, land use, disease and insect infestation, pollution, sequential changes, high-altitude-satellite imagery; mapping, photo-mensurational techniques; multistage sampling, and special problems. One lec and one 2- or 4-hr lab a wk; two 1-day field trips. Prereq: For 375 or equivalent, or perm. (Alt/yrs)

For **ID581 Integrated Forest Resource Economics** (2 cr). WSU NATRS 511. Microeconomic theory of forest resource production and supply; valuing non-commodity and intangible forest resources; optimizing jointly produced resources; hierarchical decision analysis, case studies and policy evaluation. Prereq: undergraduate course in natural resource economics or perm. (Alt/yrs)

For **584 Natural Resource Policy Development** (2 cr). The development of natural resource policy with emphasis on the policy process in the legislative branch of U.S. government; the role of and interrelationships between staff, committees, agencies, and elected officials; the relationship of science and scientists with policy and politicians in the development of natural resource policy, including preparation of testimony related to natural resource science and policy issues. Prereq: undergraduate course in natural resource policy or political science or perm. (Alt/yrs)

For **585 Natural Resources Policy Analysis** (2 cr). Theories of policy analysis, natural resource policy formulation, and applications for developing policy-relevant information. Prereq: undergraduate course in natural resource policy or political science or perm. (Alt/yrs)

For **586 Social Ecology of Natural Resources** (3 cr). Same as RRT 586. Social theory and methods relevant to resource management; interdisciplinary examination of specific natural resource issues such as fire management, wilderness, fisheries disputes, energy policy; emphasis on understanding social aspects of natural resources within an ecological perspective.

For **589 Water Resources Seminar** (1 cr). See Intr 589.

For **596 Field Studies in Tropical Ecology and Dendrology** (3 cr). See For J496/J596.

For **597** (s) **Practicum** (cr arr). Prereq: perm.

For **598** (s) **Internship** (cr arr). Prereq: perm.

For **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

For **600** **Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Genetics

Though there is no genetics degree per se at the University of Idaho, many degrees emphasize genetics. Information about research programs, specifics of courses, and academic advising is available from any member of the genetics faculty.

Gene **200** (s) **Seminar** (cr arr). Prereq: perm.

Gene **299** (s) **Directed Study** (cr arr). Prereq: perm.

Gene **314 General Genetics** (3 cr). Principles of molecular genetics, microbial genetics, cytogenetics, qualitative genetics, quantitative genetics, and population genetics. Prerq: Biol 112 or perm. (Spring only)

Gene **WS320 Genetics of Farm Animals** (3 cr). See AVS 330.

Gene **400** (s) **Seminar** (cr arr). Prereq: perm.

Gene **499** (s) **Directed Study** (cr arr). Prereq: perm.

Gene **501** (s) **Seminar** (cr arr). Prereq: perm.

Gene **502** (s) **Directed Study** (cr arr). Prereq: perm.

Gene **WS505 Introduction to Population Genetics** (3 cr). WSU Bio S 519.

Gene **528 Forest Gene Resource Management** (3 cr). See For 528.

# Geography

**Harley E. Johansen, Head, Dept. of Geography (203 McClure Bldg. 83844-3021; phone 208/885-6216; geog@uidaho.edu).**

Geog **100 Physical Geography** (4 cr). *May be used as core credit in J-3-b.* Natural environment; nature, distribution, and relationships of climate, landforms, oceans, vegetation, hydrography, and soils. Three lec and one 2-hr lab a wk; may involve evening classes.

Geog **165 Human Geography** (3 cr). Intro to geographical dimension in human behavior and how this is evident in population distribution, rural and urban land use, and social, economic, and political attributes of societies.

Geog **180 Spatial Graphics** (3 cr). An introduction to the graphic language of maps, map reading and interpretation, map use, map technology. Two lec and 1 hr of lab a wk.

Geog **200 World Regional Geography** (3 cr). *May be used as core credit in J-3-e.* Countries, regions, and peoples of the world; interrelationships between humans and their physical and cultural environments.

Geog **201** (s) **Seminar** (cr arr). Prereq: perm.

Geog **203** (s) **Workshop** (cr arr). Prereq: perm.

Geog **204** (s) **Special Topics** (cr arr). Prereq: perm.

Geog **240 Economic Geography** (3 cr). Reciprocal relations between people and the earth environment within an economic framework; resource distribution, developmental alternatives, movement, processing and industrialization, local to global perspective, theories and case studies.

Geog **280 Cartographic Production Techniques** (4 cr). Practical production and design of finished maps for publication using methods appropriate for the task; emphasis on the process of reducing real-world phenomena and spatial relationships into well designed maps that effectively convey information visually. One lec and 3 hrs of lab a wk.

Geog **299** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **301 Meteorology** (3 cr). Atmospheric processes that produce weather; temperature; moisture, clouds, and precipitation; synoptic-scale weather; severe storms; weather instrumentation, weather maps, and forecasting; influences of weather on humans and impacts of humans on weather. One 1/2-day field trip. Prereq: Geog 100 or Phys 100 or perm.

Geog **315 Geomorphology** (3 cr). See Geol 335.

Geog **316 Processes in Glacial and Periglacial Environments** (3-6 cr). See Geol J236/J36.

Geog **320 Survey of Hydrologic Science** (3 cr). Survey of topics in hydrologic science. Topics including: the global water cycle, storage and movement of soil moisture, soil hydraulic characteristics, rainfall/runoff relationships, approaches to watershed modeling, basic principles of groundwater flow. Lab includes hands-on field and computer lab exercises. Two hrs lecture and two hrs lab per wk. Prereq: Math 143, and Chem 101 or Chem 111 or Phys 111 or Phys 221 or equiv.

Geog **330 Urban Geography** (3-4 cr). Theory and models of the functions, origin, development, structure, and distribution of cities; land-use classification; geographic aspects of city planning. One hour additional meeting per week or project for fourth credit. One 1-day field trip. Prereq: Geog 200 or perm.

Geog **J340/J540 Business Location Decisions** (3 cr). Locational decision making in primary, secondary, and tertiary industries; resulting patterns of industrial location; importance of location and impact of industries on other characteristics of communities as demonstrated by examples from each sector. One 1-day field trip. Additional assignments and exams reqd for grad cr. Prereq: Geog 200 or perm.

Geog **346 Transportation** (3-4 cr). Structure of transportation systems and the role of these in spatial interactions; comparative advantages of air, water, highway, rail, and pipeline transport, and current development in each mode. One hour additional meeting per week or project for fourth credit. One and one-half days of field trips. Prereq: Geog 200 or perm.

Geog **J350/J550 Geography of Development** (3-4 cr). Geographic appraisal of resource problems and development potentials of the Third World. One hour additional meeting per week or project for fourth credit. Additional assignments and exams reqd for grad cr. Prereq: Geog 200.

Geog **J360/J560 Population Dynamics and Distribution** (3-4 cr). Geog 360 same as Soc 360. Effects of fertility, mortality, and migration on population size and distribution; demographic trends in U.S. and other societies and how these relate to economic, political, environmental, and other factors. One hour additional meeting per week or project for fourth credit. Additional assignments and exams reqd for grad cr. Prereq: Geog 200 or perm.

Geog **ID362 U.S. and Canada** (3 cr). WSU Hist 314. Regional and systematic geography; emphasis on contemporary problems. Two 1-day field trips.

Geog **364 Idaho and the Pacific Northwest** (3 cr). Regional and systematic geography of the Northwest; emphasis on Idaho and contemporary problems. One 2-day field trip.

Geog **365 Political Geography** (3 cr). Conceptual approach to manifestations of political activity at every organizational level; intro to basic ideas of politics, territory, and geographic environment. Prereq: Geog 200 or perm.

Geog **370 Spatial Analysis** (3 cr). Methodological need for analyses of spatial data; spatial statistics; measurement of aggregation and concentration, description of areal distributions and gradients; regionalization techniques; intro to computer applications for spatial data. Prereq: intro courses in physical science and social science and Stat 251 or equivalent.

Geog **378 Interactive Cartography** (3 cr). Integration of GIS, desktop mapping, and office productivity applications; development of software applications. Two lec, 2 hrs of lab, and 6 hrs of outside work per wk. Prereq: Geog 280 or perm.

Geog **380 Cartography and Graphic Communication** (3 cr). For the map-using professions (e.g., agriculture, engineering, forestry, geosciences, planning). Map design and construction; maps as graphic communication devices, design and drafting processes for map creation and production. Two lec and 6 hrs of lab a wk.

Geog **ID385 GIS Primer** (3 cr). WSU ES/RP 385. Intro to basic concepts and applications of geographic information systems (GIS), lab exercises on PC-based GIS packages. Two lec and 2 hrs of lab a wk. Prereq: basic knowledge of PC-based operating system.

Geog **400** (s) **Seminar** (cr arr). Prereq: perm.

Geog **401 Climatology** (3 cr). Physical basis for climatic processes and patterns; mechanics of global atmospheric circulation; radiation balance and heat budget of the earth; models of weather patterns and climate. Prereq: Geog 100 or Geog 301 or Phys 100 or perm.

Geog **403** (s) **Workshop** (cr arr). Prereq: perm.

Geog **404** (s) **Special Topics** (cr arr). Prereq: perm.

Geog **J405/J505 Climate and Water Resources Change** (3 cr). Physical processes that determine the climate of Earth and its past and future changes: greenhouse effect, radiative and heat feedback processes, orbital parameter theory. Climate and Environmental Periods. Atmospheric and water resources change within the instrumental period of records. Future climate and water resources: Paleo-perspectives on "greenhouse warming". Review of paleoclimate techniques: dendro-climatology, marine and lake sediments, polar and mountain ice core paleo-climatic records, paleo-climatic and historic data analysis. Additional assignments and exams reqd for grad cr. Prereq: Geog 401 and Stat 251, or perm.

Geog **420 Land, Resources, and Environment** (3 cr). Legal aspects of land-use control and resource management; methods of research in law libraries for planners and resource managers not trained as attorneys. Prereq: Geog 200 or perm.

Geog **J427/J526 Spatial Decision Support Techniques** (3 cr). Theory and applications of evaluation, collaborative spatial decision making, and optimization techniques in planning and management of natural resource systems; focus on operational knowledge of techniques, applicability, and limitations. Additional assignments and exams reqd for grad cr. Prereq: Geog 240, Math 160 or Stat 401 or perm. (Alt/yrs)

Geog **WS-J444/WS-J544 Environmental Assessment** (4 cr). WSU ES/RP 444.

Geog **470 Computer Mapping** (3 cr). Design, generation, and analysis of thematic and topographic maps using digital mapping software on various microcomputer platforms and output devices; emphasis on cartographic communication and spatial analysis of computer-generated maps. Two lec and 2 hrs of lab a wk. Prereq: Geog 380 or perm.

Geog **ID475 Geographic Information Systems** (3 cr). WSU ES/RP 575. Spatial analysis in raster- and vector-based systems; concepts, techniques, and applications of GIS technology using microcomputer and workstation platforms. Two lec and 2 hrs of lab a wk. Prereq: Geog 385 or perm.

Geog **477 Web Resource Development for Geography** (3 cr). Deployment of GIS content on the Web; geo-spatial data management; client-side vs. server-side; critique public and private sector sites; coding in HTML, Visual Basic; scripting. Two lec, 2 hrs of lab, and 6 hrs of outside work a wk. Prereq: Geog 378 or perm.

Geog **480 Advanced Cartography and Remote Sensing** (3 cr). Problems in compilation, design, and production of complex thematic maps using state-of-the-art techniques and materials; scribing, process photography, computer cartography, remotely sensed imagery, and printing and reproduction methods to produce a printed map. One lec and six hrs of lab a wk; one 2-day field trip. Prereq: Geog 380 or perm.

Geog **J483/J583 Remote Sensing/GIS Integration** (3 cr). Concepts and tools for the processing, analysis, and interpretation of digital images from satellite and aircraft-based sensors. The integration of remotely sensed date and the other spatial data types within Geographic Information Systems. Additional assignments and exams reqd for grad cr. Two lec and 2 hr of lab a wk. Prereq: For 472 or equiv, and Stat 251. Coreq: Geog 385 or equiv.

Geog **J484/J584 Advanced Topics in Remote Sensing and Image Processing** (3 cr). Advanced concepts in the applications of remote sensing data to natural resource issues. Expanded and advanced capabilities for the analysis and interpretation of digital imagery. Additional assignments and exams reqd for grad cr. Two lec and 2 hrs of lab a wk. Prereq: Geog 385 and 483.

Geog **491** (s) **Field Techniques** (1-3 cr, max 6). Acquisition of data in the field, analysis, interpretation, and presentation of results of field investigations. May also be taken in conjunction with other geography courses. Prereq: perm.

Geog **492 Mineral Industry Case Studies** (3 cr). See Min 472.

Geog **497** (s) **Practicum** (1-6 cr, max 6). Practical on-the-job experience in applied geography and cartography; oral and written reports are presented in which the student reviews and constructively criticizes the experience gained. Prereq: perm.

Geog **498** (s) **Internship** (cr arr). Prereq: perm.

Geog **499** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **500 Master's Research and Thesis** (cr arr).

Geog **501** (s) **Seminar** (cr arr). Prereq: perm.

Geog **502** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **503** (s) **Workshop** (cr arr). Prereq: perm.

Geog **504** (s) **Special Topics** (cr arr). Prereq: perm.

Geog **505 Climate and Water Resources Change** (3 cr). See Geog J405/J505.

Geog **509 Alpine Hydrology** (3 cr). Alpine runoff generation in concept of climatic and environmental changes, with particular emphasis on snow and glacier hydrology, permafrost, snow-water chemistry, watershed meteorology, watershed energy balance, land classification and suitability analysis, interpolation techniques, terrain analysis and model integration. Sources and ramifications of potential, problems of a small watershed in water resources changes (restoration and conservation). Prereq: Geog 320, Geog 401, and one semester of calculus, or perm.

Geog **516 Advanced Field Glaciology** (6 cr). See Geol 536.

Geog **518 Climate and Hydroclimate Modeling** (3 cr). Principles of global climate modeling. A hierarchy of modeling approaches, conceptual models, empirical/statistical models, analytical models, and simple and complex numerical models. Verification, interpretation and visualization of model output, numerical techniques and methods. Review of objective analysis techniques commonly applied to atmospheric problems. Development of the Precipitation-Runoff-Modeling System (PRMS), the Snowmelt Runoff Model (SRM), and others meso- and regional models. Modeling seasonal cycles of snow cover. Prereq: Geog 405/505 and Stat 251, or perm.

Geog **520 Land and Resource Regulation Seminar** (3-6 cr, max 6). Current legal issues in land use control and mineral resource management. Prereq: Geog 420 or perm.

Geog **526 Spatial Decision Support Techniques** (3 cr). See Geog J427/J526.

Geog **527 Seminar in Resource Geography** (3 cr). Examination of spatial ramifications of resource issues; emphasis on fuel and non-fuel minerals and development of spatial models used in evaluation process.

Geog **540 Business Location Decisions** (3 cr). See Geog J340/J540.

Geog **WS544 Environmental Assessment** (4 cr). See Geog WS-J444/WS-J544.

Geog **550 Geography of Development** (3-4 cr). See Geog J350/J550.

Geog **560 Population Dynamics and Distribution** (3-4 cr). See Geog J360/J560.

Geog **580 GIS Seminar** (3 cr). Advanced topics in GIS and GIS applications including macro programming, user interface design, and data integration. Prereq: Geog 380 or perm.

Geog **582 Modeling and Simulation with Geographic Information Systems** (3 cr). Principles and techniques of modeling and simulation of spatial and temporal processes; map algebra modeling language; model design and implementation using map algebra and a GIS macro programming language in UNIX environment. Two lec and 2 hrs of lab a wk. Prereq: Geog 475 and 580. (Alt/yrs)

Geog **583 Remote Sensing/GIS Integration** (3 cr). See Geog J483/J583.

Geog **584 Advanced Topics in Remote Sensing and Image Processing** (3 cr). See Geog J484/J584.

Geog **591 History and Philosophy of Geography** (3 cr). Evolution of geography as a discipline, focusing on post-scientific revolution developments and identification of major themes in contemporary geographic thought.

Geog **597** (s) **Practicum** (cr arr). Prereq: perm.

Geog **598** (s) **Internship** (cr arr). Practical, on-the-job experience with governmental agencies or commercial establishments; oral and written reports are presented in which the student reviews and constructively criticizes the experience gained; salary may be received for services performed. Prereq: perm.

Geog **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Geog **600 Doctoral Research and Dissertation** (cr arr).

# Geological Engineering

**Francis H. (Sam) Froes, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).**

GeoE **130 Engineering Analysis and Computations** (3 cr). See Min 130.

GeoE **203** (s) **Workshop** (cr arr). Prereq: perm.

GeoE **204** (s) **Special Topics** (cr arr). Prereq: perm.

GeoE **210 Introduction to Geological Engineering** (1 cr). Introduction to geological engineering testing, analysis, and design methods; data interpretation and problem solving using computers. One lec and one recitation a wk. Prereq: Geol 101 or 111, and Math 170.

GeoE **299** (s) **Directed Study** (cr arr). Prereq: perm.

GeoE **309 Groundwater** (3 cr). See Geol 309.

GeoE **312 Geological Engineering Materials** (3 cr). Selected studies in mineralogy and petrology; engineering properties of soil, rock, and groundwater; introduction to site investigation and sampling. Three lec and one recitation a wk; one 1-day field trip. Prereq: Geol 101 or 111. Prereq or coreq: Engr 210.

GeoE **320 Blasting Engineering** (3 cr). See Min 304.

GeoE **ID344 Earthquakes and Seismic Hazards** (3 cr) (GeoE 444). See Geol 344.

GeoE **352 Cost Engineering and Management** (3 cr). See Min 352

GeoE **360 Geologic Hazards** (3 cr). See Geol 360.

GeoE **362 Fundamentals of Geotechnical Engineering** (4 cr). See CE 360.

GeoE **370 Auxiliary Operations in Excavation Industries** (3 cr). See Min 370.

GeoE **372 Subsurface Ventilation and Environmental Management** (3 cr). See Min 372.

GeoE **400** (s) **Seminar** (cr arr). Prereq: perm.

GeoE **401 Field Geology and Report Writing** (6 cr). See Geol 401.

GeoE **403** (s) **Workshop** (cr arr). Prereq: perm.

GeoE **404** (s) **Special Topics** (cr arr). Prereq: perm.

GeoE **407 Rock Mechanics** (3-4 cr). See Min 401.

GeoE **409 Quantitative Hydrogeology** (3 cr). See Hydr 409.

GeoE **410 Techniques of Groundwater Study** (3 cr). See as Geol 410.

GeoE **420 Erosion and Sediment Control** (3 cr). Same as Geol 420. Erosion and sediment control principles and practices, with emphasis on construction activities and compliance with regulatory guidelines. One 1-day field trip. Prereq: perm.

GeoE **421 Engineering Geophysics** (3 cr). See Min 421.

GeoE **ID428 Geostatistics** (3 cr). Same as Stat and Min 428. WSU Geol and Stat 428. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation, variograms, kriging, and simulation. Prereq: Stat 301 or equivalent.

GeoE **ID&WS435 Geological Engineering Principles** (3 cr). WSU Geol 426. Use of geological information in engineering interpretation, analysis, and design; engineering stability analyses for excavations and slopes. One 1-day field trip. Prereq: Phys 211, and GeoE 312 or CE 360; or graduate standing.

GeoE **436 Geological Engineering Design** (3 cr). Geological engineering design methods and projects, including artificial reinforcement techniques; individual and teamwork approaches to formulating and solving geological engineering problems. One 1-day field trip. Prereq: GeoE 435.

GeoE **ID-J442/ID-J542 Geomechanics** (3 cr). See Geol J442/J542.

GeoE **462 Geotechnical Engineering Design** (3 cr). See CE 460.

GeoE **J463/J563 Hydrogeology** (3 cr). See Hydr J463/J563.

GeoE **J464/J564 Groundwater Seepage, Drainage, and Dewatering** (3 cr). Estimation of groundwater seepage for excavations, embankments, slopes, and tunnels; construction and use of flow nets; measurement and mapping of potentiometric surfaces; dewatering for construction and groundwater remediation. Additional project required for graduate credit. Prereq: GeoE 309 or 409 or 435 or CE 360.

GeoE **J468/J568 Aquifer Test Design and Analysis** (3 cr). See Hydr J468/J568.

GeoE **475 Mineral Deposits** (4 cr). See Geol 475.

GeoE **ID-J476/ID-J576 Exploration Methods** (3 cr). See Geol J476/J576.

GeoE **ID-J480/ID-J580 Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

GeoE **485 Geochemical Exploration** (3 cr). See Geol 485.

GeoE **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

GeoE **499** (s) **Directed Study** (cr arr). Prereq: perm.

GeoE **500 Master's Research and Thesis** (cr arr).

GeoE **501** (s) **Seminar** (cr arr). Prereq: perm.

GeoE **502** (s) **Directed Study** (cr arr). Prereq: perm.

GeoE **503** (s) **Workshop** (cr arr). Prereq: perm.

GeoE **507 Rock Mechanics II** (3 cr). See Min 504.

GeoE **523 Environmental Geophysics** (3 cr). Applications of geophysical methods to hydrogeological and geotechnical problems.

GeoE **528 Advanced Topics in Geological Engineering** (3 cr). Same as Min 528. Advanced theory and applications, with emphasis on geostatistical simulations, soil and rock reinforcement, and computer modeling methods in geological engineering. Prereq: GeoE 428 and 435.

GeoE **ID535 Seepage and Earth Dams** (3 cr). Same as CE 563. WSU C E 507. Principles of earth-dam design, failures, practical considerations in construction; principles governing the flow of water through soils. Prereq: perm.

GeoE **ID536 Slope Stability Analysis** (3 cr). Theory of stability analysis of slopes, landslides, and embankments for soil and rock masses; problem solutions using hand calculations and the latest computer codes; problems explore practical applications in the geotechnical engineering field.

GeoE **540 Stochastic Geotechnology** (3 cr). Probabilistic methods applied to geotechnology with emphasis on engineering, environmental geology, and hydrogeology. Prereq: GeoE 428 or Stat 451.

GeoE **ID542 Geomechanics** (3 cr). See Geol J442/J542.

GeoE **ID546 Fault Mechanics** (3 cr). See Geol 546.

GeoE **563 Hydrogeology** (3 cr). See Hydr J463/J563.

GeoE **568 Aquifer Test Design and Analysis** (3 cr). See Hydr J468/J568.

GeoE **ID576 Exploration Methods** (3 cr). See Geol J476/J576.

GeoE **580 Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

GeoE **589 Water Resources Seminar** (1 cr). See Intr 589.

GeoE **597** (s) **Practicum** (cr arr). Prereq: perm.

GeoE **598** (s) **Internship** (cr arr). Prereq: perm.

GeoE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Geology

**Dennis J. Geist, Head, Dept. of Geological Sciences (320 Mines Bldg. 83844-3022; phone 208/885-6192).**

Geol **101 Physical Geology** (4 cr). *May be used as core credit in J-3-b.* The earth, its composition, structure, and natural processes. Three lec and 2 hrs of lab a wk; one 1-day field trip.

Geol **102 Historical Geology** (4 cr). *May be used as core credit in J-3-b.* Evolution of the physical earth, plants, and animals; techniques used in interpretation of geologic history. Three lec and 2 hrs of lab a wk; one 1-day field trip.

Geol **111 Physical Geology for Science Majors** (4 cr). Introductory course in earth science for geology and other science majors. Three lec and one 2-hr lab a wk; two 1-day field trips.

Geol **150 Geology of the Oceans** (3 cr). Introduction to the geology of the oceans including their origins and evolution. One 1-day field trip.

Geol **203** (s) **Workshop** (cr arr). Prereq: perm.

Geol **204** (s) **Special Topics** (cr arr). Prereq: perm.

Geol **212 Principles of Paleontology** (4 cr). Studies of morphology, classification of fossil groups, and utility of fossils in interpreting depositional environments and ages of sedimentary rocks. Three lec and one 2-hr lab a wk; one 1- to 2-day field trip. Prereq: Geol 102.

Geol **J236/J336 Processes in Glacial and Periglacial Environments** (3-6 cr). Same as Geog 316. Quantitative treatment using examples from regions of existing glaciers and permafrost. Two lec and one 3-hr lab a wk or (for 6 cr) 6-wk intensive field session in Alaska and Canada.

Geol **249 Mineralogy and Optical Mineralogy** (4 cr). Principles of crystallography, crystal chemistry, and crystal structure; mineral identification; principles of optical mineralogy and use of the petrographic microscope. Three lec and one 2-hr lab a wk; two 1-day field trips. Prereq: Geol 111 or Geol 101, and Chem 111.

Geol **299** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **301 Computer Geology** (2 cr). Computer applications in geology; use of BASIC programs, computer graphics, spreadsheets, and data bases to help solve geological problems. One lec and one 2-hr lab a wk. Prereq: perm.

Geol **306 Nature of Earth Materials** (3 cr). Characterization and use of minerals and rocks; the role of rocks and minerals in hydrological and environmental problems; use of geologic maps in the determination of spatial distribution of natural materials for land use planning. Two lec and 2 hrs of lab a wk; one 1-day field trip. Prereq: Geol 101 or 111.

Geol **309 Groundwater** (3 cr). Same as GeoE 309. Occurrence, movement, and properties of subsurface water; intro to ground-water geology and hydrology. Prereq: Geol 101 or 111, and Math 130 or 143.

Geol **323 Geology of the Pacific Northwest** (3 cr). Description and development of the distribution of rocks and mineral deposits in the Pacific Northwest. One 2-day field trip. Prereq: Geol 101 or Geog 100.

Geol **324 Principles of Stratigraphy and Sedimentation** (3-4 cr). Description and identification of sedimentary rocks; organization and correlation of layered rocks in all scales, including factors controlling their distribution; cycles in sedimentation and stratigraphy; sequence stratigraphy and basin dynamics. Geology majors must enroll for 4 credits. Two lec and two 2-hr labs a wk; one 4-day field trip.

Geol **326 Igneous and Metamorphic Petrology** (4 cr). Hard rock petrology plus megascopic and microscopic petrography of igneous and metamorphic rocks. Two lec and two 2-hr labs a wk; two 1-day or one 2-day field trips. Prereq: Geol 249.

Geol **335 Geomorphology** (3 cr). Same as Geog 315. Classification, recognition, origin, and significance of land forms; land form analysis in interpretation of geologic structure and history. One 2-day field trip. Prereq: Geol 101 or 102 or 111, or Geog 100, or perm.

Geol **336 Processes in Glacial and Periglacial Environments** (3-6 cr). See Geol J236/J336.

Geol **ID344 Earthquakes and Seismic Hazards** (3 cr) (Geol 444). WSU Geol 444. Same as GeoE 344. The geology of earthquakes including the cause of fault rupture, seismic waves, focal mechanisms, and earthquakes associated with all fault types in a variety of tectonic settings; methods of identifying paleo-earthquakes in the geologic record, and the assessment of seismic hazard and risk in active fault environments. One 3-day field trip. Prereq: Geol 101 or 111.

Geol **345 Structural Geology** (3-4 cr). Deformed rocks; mechanics of failure, recognition, description, classification, and genesis of folded and fractured rocks. Geology majors must enroll for 4 credits. Two lec and one 2-hr lab a wk; one 2-day field trip (geology

majors must take five 1-day field trips). Prereq: one semester high-school trigonometry or Math 144, Geol 101 or 111, and Phys 111 or 211.

Geol **350 Oceanography** (3 cr) (Geol 150). Study of geologic features of oceans. One 8-day field trip. Prereq: Geol 101 or 111.

Geol **360 Geologic Hazards** (3 cr). Same as GeoE 360. Survey of natural geologic hazards, their controlling factors, recognition of hazard potential; emphasis on flash floods, earthquakes, landslides, volcanic hazards, subsidence. Three 1-day field trips. Prereq: Geol 101 or 111.

Geol **361 Geology and the Environment** (3 cr). Environmental consequences of development of geologic resources; geochemistry of pollution due to geologic resource use; geology and geochemistry of waste disposal sites. Two 1-day field trips. Prereq: Geol 101 or 111.

Geol **375 Geology of National Parks** (2 cr). Primarily for non-geology majors who want to acquire a better knowledge of geologic concepts and processes through study of geology of national parks. One 6-day field trip. Prereq: Geol 101 or 102 or 111 or Geog 100.

Geol **400** (s) **Seminar** (cr arr). Prereq: perm.

Geol **ID&WS401 Field Geology and Report Writing** (6 cr). Same as GeoE 401. WSU Geol 308. Field problems and methods; use of instruments; interpretation of field data; preparation of reports based on field observations and interpretations. Three field trips. Accident and health insurance reqd. Prereq: Geol 345; Geol 324 and 326.

Geol **405 Earth Sciences** (3 cr). Integration of, and current issues in, the earth sciences (astronomy, geology, meteorology, oceanography) as applied to earth science education. Three lec and one 2-hr lab a wk; two field trips. Prereq: Geog 100, and Geol 101 or 111 (Geog 401 and Phys 103-104 recommended).

Geol **408 Field Methods in the Earth Sciences** (3 cr). Observation and collection of data in the field and using the data for practical application of the earth sciences; course may be accelerated. Three lec and one 2-hr lab a wk; three field trips. Prereq: Geol 101 or 111, and Geol 335.

Geol **410 Techniques of Groundwater Study** (3 cr). Same as GeoE 410. Collection and analysis of field data for reconnaissance groundwater studies. Two weekend field trips. Prereq or coreq: Geol/GeoE 309.

Geol **J412/J512 The Making of a Habitable Planet** (3 cr). Same as EnvS J412/J512. The habitability of planet earth derives from a long history originating with the origin of the universe. This class will look at the origin and evolution of our planet and culminate with human's impact on the terrestrial environment. Grad credit will require additional design, educational, or research project. Prereq: One semester of college chemistry.

Geol **ID-J415/ID-J515 Paleoecology** (3 cr). WSU Geol 515. Ecological dynamics as applied to the paleontologic record; preservation constraints; animal-sediment interactions; organisms' role in the relative time scale. Different term paper reqd for grad cr. Two lec and one seminar-style meeting a wk; one 5-day field trip to Oregon Coast.

Geol **J416/J516 Advanced Field Methods in Geosciences** (3 cr). Application of field techniques to the recognition and solution of problems of applied and research interest; design and implementation of integrated geological, geochemical, and geophysical programs. For 500-level credit, an additional independent project is required that demonstrates the student's ability to design and carry out a geologic/geochemical/geophysical survey. Accident and health insurance required. Three week field trip. Prereq: Geol 401 or perm.

Geol **417 Advanced Paleontology** (3 cr). Fossil assemblage analyses and report writing; marine faunal assemblage 1st half semester; nonmarine floral assemblage 2nd half semester. Three 2-hr labs a wk; one 1-day field trip. Prereq: Geol 212 or perm.

Geol **420 Erosion and Sediment Control** (3 cr). See GeoE 420.

Geol **422 Principles of General Geophysics** (3 cr). See Geop 422.

Geol **423 Principles of Geochemistry** (3 cr). Physiochemical principles applied to geologic processes. Topics covered include atmospheric geochemistry, environmental geochemistry, aqueous geochemistry, crystal chemistry, radiogenic and stable isotopes. Two lec and one 2-hr lab a wk. Prereq: Geol 101 or 111, and Chem 112.

Geol **J432/ID-J532 Geologic Development of North America** (3 cr). WSU Geol 529. Tectonic, magmatic, and sedimentary sequence studies of North American continent through time; concepts of metal and petroleum enrichment related to time and geological processes. Additional questions on two exams and written report of field trip reqd for grad cr. One 7-day field trip.

Geol **ID&WS-J441/ID&WS-J541 Structural Analysis** (3 cr). WSU Geol 541. Structural analysis of complexly deformed rocks in orogenic belts. Field trip required.

Geol **ID-J442/ID-J542 Geomechanics** (3 cr). Same as GeoE J442/J542. Concepts of linear elastic fracture mechanics as applied to the classification, origin and evolution of all types of rock fractures; continuum theory in rock mechanics; rock strength and failure criteria; stress tensors; elastic theory. Graduate student enrollment requires a term project. Two 1-day field trips. Prereq: Phys 111 or 211, Math 175.

Geol **ID&WS-J448/ID&WS-J548 Tectonics** (3 cr). WSU Geol 540. Fundamentals of global plate tectonics, evolution of ocean basins, and the development of continental orogenic belts; focus on theoretical aspects of global tectonics, the salient physical constraints leading to the paradigm, and practical application of the model to regional geological problems. Graduate credit requires additional work including independent research, presentation of the research results in a class presentation, writing a research paper, and answering an additional question in examinations. Two lec and 2 hrs of lab a wk; one or two 1- to 2-day field trips.

Geol **J455/J555 Thermochemistry of Geological Processes** (3 cr). Thermodynamic principles applied to geological problems; specific topics include real gases at high P and T, estimation and measurement of thermodynamic data, solid solution modelling, geobarometry, geothermometry, thermodynamics of magmas. Additional projects/assignments reqd for grad cr. Prereq: Chem 302 or perm. (Alt/yrs)

Geol **J456/J556 Geological Reaction Rates and Diffusion** (3 cr). Chemical kinetics applied to geological sciences; diffusion in crystals, melts and fluids; crystal growth and nucleation; geospeedometry; dissolution and precipitation kinetics; weathering rates; crystal defects. Additional projects/assignments reqd for grad cr. Prereq: Chem 302 and Geol J455/J555, or perm. (Alt/yrs)

Geol **J457/ID-J557 High-Temperature Aqueous Geochemistry I** (3 cr). WSU Geol 557. Application of solution chemistry to hydrothermal solutions; Eh-pH, log $f(0_2)$ - pH, activity - activity diagrams; estimation techniques; water structure; metal complexation; solubility, transport and deposition; equilibrium speciation; geothermal fields; experimental methods; activity coefficients. Additional projects/assignments reqd for grad cr. Two lec and three hrs of lab a wk; one 4-day field trip. Prereq: Chem 302 and Geol J455/J555 or perm. (Alt/yrs)

Geol **J458/ID-J558 High-Temperature Aqueous Geochemistry II** (3 cr). WSU Geol 558. Expands on topics covered in Geol J457/J557 through seminar format. Selected readings from primary literature followed by presentations and discussions in class. Additional projects/assignments reqd for grad cr. Prereq: Chem 302, Geol J455/J555 and J457/J557, or perm. (Alt/yrs)

Geol **ID&WS-J459/ID&WS-J559 Geodynamics** (3 cr). WSU Geol 559. Dynamics, movement, and deformation of the earth's lithosphere, asthenosphere, and mantle; emphasis on deformation processes and constraints derived from investigation of active tectonics using geophysics, seismology, geodesy, and structural geology. Graduate credit requires additional paper and examination questions. Prereq: Geol 345. (Alt/yrs)

Geol **J467/ID-J567 Volcanology** (3 cr). WSU Geol 567. Eruption mechanisms, volcanic processes and landforms, and volcanic deposits. Additional projects/assignments reqd for grad cr. Two lec and one 2-hr lab a wk; seven days of field trips.

Geol **J468/J568 The Geochemistry of Natural Waters** (2 cr). Basic principles of aqueous geochemistry applied to natural waters (groundwaters, lake and river waters, seawater), presented at an intermediate level; carbonate equilibria and alkalinity, solubility of minerals, sorption processes and surface reactions, redox reactions and Eh-pH diagrams, organic geochemistry, etc. For graduate credit, students are required to prepare two in-depth term papers and demonstrate through exam work and papers a more in-depth understanding of the material. One compressed video and one web-based lecture a wk. Prereq: Chem 111-112. Suggested preparation: Geol 423.

Geol **WS470 Introduction to Economic Geology** (4 cr). WSU Geol 470.

Geol **472 Mineral Industry Case Studies** (3 cr). See Min 472.

Geol **475 Mineral Deposits** (4 cr). Same as GeoE 475. Occurrence, classification, and origin of metallic and nonmetallic economic mineral deposits. Three lec and one 3-hr lab a wk; one 3-day field trip. Prereq: Geol 249 and 345 (Geol 423 recommended).

Geol **ID-J476/ID-J576 Exploration Methods** (3 cr). Same as GeoE J476/J576. Design of mineral exploration programs and integration and evaluation of geological, geochemical, and geophysical exploration techniques. Graduate credit requires an additional independent project and demonstration through exam work and papers of a more in-depth understanding of the material. One 10-day field trip. Prereq or coreq: Geol 475 or 470.

Geol **J478/J578 Advanced Geochemistry of Natural Waters** (3 cr). Detailed application of aqueous geochemistry to natural waters at an advanced level; advanced treatment of subjects introduced in Geol J468/J568, plus computer modeling of aqueous equilibria; accompanying lab will stress familiarity with analytical techniques including those adaptable for field use. For graduate credit, students must complete an in-depth term project involving design, execution, and interpretation of analyses of a contaminated water. Two lec and 3 hrs of lab a wk; one 2-day field trip. Prereq: Geol J468/J568 or perm.

Geol **ID&WS-J483/ID&WS-J583 Radiogenic Isotopes and Geochronology** (3 cr). WSU Geol 483/583. Nuclear structure, radioactive decay, isochrons, the age of meteorites, the earth, and the timing of various major differentiation events, applications of radiometric (including cosmogenic) dating in a wide range of fields, and the use of radiogenic isotopes as tracers of multi-reservoir evolution. Graduate credit requires additional paper and examination questions.

Geol **485 Geochemical Exploration** (3 cr). Same as GeoE 485. Principles of geochemical techniques in prospecting for mineral deposits; design, execution, and interpretation of geochemical surveys. Two lec and one 3-hr lab a wk; two 1-day field trips. Prereq: Geol 423 and Chem 113.

Geol **J487/J587 Instrumental Techniques in Geochemistry** (3 cr). Modern instrumentation for geochemical analyses including: ion chromatography, gas chromatography, FTIR spectroscopy, ICP-AES, ICP-MS, atomic absorption, UV-visible absorption spectrophotometry, geological sampling preparation. For graduate credit, students must carry out a term project involving the design, testing, and use of analytical protocol using one or more of the instruments covered in class; this project will be reported as a term

paper worth a significant proportion of the grade and must reflect an in-depth understanding of the subject material. Two lec and one 3-hr lab a wk. Prereq: perm. (Alt/yrs)

Geol **J488/ID-J588 Isotope Geology** (3 cr). WSU Geol 588. Laboratory applications of radioactive isotopes; geochronology and isotopes as tracers. Cr earned in Geol 588 by completion of term project. One lec and 4 hrs of lab a wk. Prereq: perm. (Alt/yrs)

Geol **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Geol **498 Senior Thesis** (1-4 cr, max 4). Completion of original research and report. Course is taken over two semesters; first semester is graded IP until completion of second semester. Prereq: Sr standing and perm.

Geol **499** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **500 Master's Research and Thesis** (cr arr).

Geol **501** (s) **Seminar** (cr arr). Prereq: perm.

Geol **502** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **503** (s) **Workshop** (cr arr). Prereq: perm.

Geol **WS511 Advanced Topics in Paleontology** (3 cr). WSU Geol 511. (Alt/yrs)

Geol **512 The Making of a Habitable Planet** (3 cr). See Geol J412/J512.

Geol **ID515 Paleoecology** (3 cr). See Geol J415/J515.

Geol **516 Advanced Field Methods in Geosciences** (3 cr). See Geol J416/J516.

Geol **WS520 Advanced Topics in Sedimentary Rocks** (3 cr). WSU Geol 520. Prereq: Geol 324. (Alt/yrs)

Geol **WS523 Advanced Topics in Stratigraphy** (3 cr). WSU Geol 523.

Geol **ID527 Sedimentary Petrography** (3 cr). WSU Geol 527. Description and classification of sedimentary rocks in thin sections and hand specimens. One lec and two 2-hr labs a wk; one 3-day field trip.

Geol **WS528 Clastic Depositional Systems** (3 cr). WSU Geol 521. (Alt/yrs)

Geol **WS529 Carbonate Depositional Systems** (3 cr). WSU Geol 525. (Alt/yrs)

Geol **ID530 Fluvial Systems** (3 cr). Investigation of the relationship between geomorphologic change and the long-term sedimentary record; factors controlling preservation potential of fluvial deposits. (Alt/yrs)

Geol **ID532 Geologic Development of North America** (3 cr). See Geol J432/ID-J532.

Geol **536 Advanced Field Glaciology** (6 cr). Same as Geog 516. Advanced quantitative treatment of glaciological problems carried out on selected glaciers of the Juneau Icefield, Alaska, or an alternative area in the Rocky Mountains or Cascades. (Intensive 7-wk summer field session)

Geol **ID&WS541 Structural Analysis** (3 cr). See Geol J441/J541.

Geol **ID542 Geomechanics** (3 cr). See Geol J442/J542.

Geol **ID546 Fault Mechanics** (3 cr). Same as GeoE 546. Examination of fundamental concepts of fault mechanics, including brittle failure, rock friction, fluid pressure effects, and variable rheological behaviors; examination of internal fault architectures to distinguish fault zone styles; stress, strain, and displacement fields addressed from a theoretical perspective and the application of geodetic measurement techniques and secondary structure analyses; emphasis on interpretation of fault slip distributions and relationship to rock properties, fault shape, and mechanical interaction in echelon fault systems; such insights placed in context of 3-D fault systems geometric evolution as well as earthquake behavior and seismic hazard recognition. One weekend field trip. Prereq: Geol 345.

Geol **WS548 Tectonics** (3 cr). See Geol J448/J548.

Geol **WS550 Advanced Mineralogy** (3 cr). WSU Geol 550. (Alt/yrs)

Geol **WS551 Ore Microscopy and Fluid Inclusion Analysis** (3 cr). WSU Geol 551. (Alt/yrs)

Geol **WS552 X-ray Analysis in Geology** (3 cr). WSU Geol 552.

Geol **ID554 Physical Petrology** (3 cr). WSU Geol 554. Applications of continuum mechanics and fluid dynamics to generation, rise, storage, and eruption of magmas.

Geol **555 Thermochemistry of Geological Processes** (3 cr). See Geol J455/J555.

Geol **556 Geological Reaction Rates and Diffusion** (3 cr). See Geol J456/J556.

Geol **ID557 High-Temperature Aqueous Geochemistry I** (3 cr). See Geol J457/J557.

Geol **ID558 High-Temperature Aqueous Geochemistry II** (3 cr). See Geol J458/J558.

Geol **ID&WS559 Geodynamics** (3 cr). See Geol J459/J559.

Geol **WS560 Advanced Igneous Petrology** (3 cr). WSU Geol 560.

Geol **ID567 Volcanology** (3 cr). See Geol J467/J567.

Geol **WS571 Geochemistry of Hydrothermal Ore Deposits** (3 cr). WSU Geol 571.

Geol **WS573** (s) **Advanced Topics in Economic Geology** (2 cr). WSU Geol 573.

Geol **ID575** (s) **Advanced Topics in Mineral Deposits Exploration** (1-4 cr, max arr). Examination of variable aspects of geodynamic character and setting of mineral deposits and evolving exploration techniques employed for their discovery. Prereq or coreq: Geol 475 or 470.

Geol **ID577** (s) **Advanced Topics in the Geochemistry of Hydrothermal Ore Deposits** (3 cr). WSU Geol 561. Advanced study of geochemical aspects of the formation of and environmental impact of metallic ores of hydrothermal origin; selected readings from the primary literature followed by presentations and discussions in class. One 3-day field trip. Prereq: Geol 557 or 470.

Geol **578 Advanced Geochemistry of Natural Waters** (3 cr). See Geol J478/J578.

Geol **ID&WS583 Radiogenic Isotopes and Geochronology** (3 cr). See Geol J483/J583.

Geol **587 Instrumental Techniques in Geochemistry** (3 cr). See Geol J487/J587.

Geol **ID588 Isotope Geology** (4 cr). See Geol J488/J588.

Geol **589 Water Resources Seminar** (1 cr). See Intr 589.

Geol **WS592 Advanced Topics in Structural Geology** (1-4 cr, max 6). WSU Geol 592.

Geol **ID593** (s) **Advanced Topics in Geomechanics** (1-4 cr, max arr). Advanced treatment of current topics in geomechanics and related disciplines such as structural geology, hydrogeology, engineering geology, and petroleum engineering.

Geol **597** (s) **Practicum** (cr arr). Prereq: perm.

Geol **598** (s) **Internship** (cr arr). Prereq: perm.

Geol **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Geol **600 Doctoral Research and Dissertation** (cr arr).

# Geophysics

**Dennis J. Geist, Head, Department of Geological Sciences (320 Mines Bldg. 83844-3022; phone 208/885-6192).**

Geop **J420/J520 Exploration Geophysics** (3 cr). Design and interpretation of geophysical surveys for exploration of metallic and nonmetallic mineral deposits; use of geophysics to solve exploration problems. Additional projects/assignments reqd for grad cr. Prereq: perm.

Geop **421 Engineering Geophysics** (3 cr). See Min 421.

Geop **422 Principles of General Geophysics** (3 cr). Same as Geol and Min 422. Outline of geophysical methods used to investigate earth's interior. One 1-day field trip. Prereq: perm.

Geop **499** (s) **Directed Study** (cr arr). Prereq: perm.

Geop **500 Master's Research and Thesis** (cr arr).

Geop **501** (s) **Seminar** (cr arr). Prereq: perm.

Geop **502** (s) **Directed Study** (cr arr). Prereq: perm.

Geop **520 Exploration Geophysics** (3 cr). See Geop J420/J520.

Geop **521 Mining Geophysics** (3 cr). See Min 520.

# Health and Safety

**Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).**

H&S **150 Wellness Lifestyles** (3 cr). Health concepts and strategies that affect one's wellness; emphasis on personal responsibility and life-style choices.

H&S **200** (s) **Seminar** (cr arr). Prereq: perm.

H&S **203** (s) **Workshop** (cr arr). Prereq: perm.

H&S **204** (s) **Special Topics** (cr arr). Prereq: perm.

H&S **245 Introduction to Athletic Injuries** (3 cr). Special fee course. Athletic training; recognition, evaluation, general care of athletic injuries; adhesive strapping. Two lec and one lab a wk.

H&S **288 First Aid: Emergency Response** (2 cr). Emergency care of injuries resulting from accidents or illness; administration of oxygen and blood pressure measurements. Qualified students will be awarded two certificates: American Red Cross Emergency Response and American Red Cross CPR for the Professional Rescuer. Certification/lab fee reqd. Two lec and 1 hr of lab a wk.

H&S **289 Drugs in Society** (2 cr). Legal implications, values, and physical, social, and emotional factors involved in the use and abuse of drugs in society.

H&S **299** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **311 Acquaintance Rape** (2-3 cr). Overview of acquaintance sexual assault and rape, related research and statistics, impact on victims, socialization process of gender role stereotyping, exploration of myths and misconceptions, psychology of perpetrators, legal definitions, and avoidance strategies. Students give a set number of presentations to living groups.

H&S **316 Community & Global Health** (2 cr). Analysis of major public health problems and issues, including environmental health issues, as they affect communities locally, regionally, nationally, and globally. Introduction to agencies, facilities, programs, and careers in community health and health care. Prereq: H&S 150.

H&S **ID349 Advanced Athletic Injuries** (3 cr). WSU Ath T 349. Special fee course. Etiologic symptoms of sports-related injuries; diagnostic emphasis given to specific injuries of the extremities. Two lec and one lab a wk. Prereq: H&S 245 or perm.

H&S **350 Stress Management and Mental Health** (2 cr). Application of behavioral stress management techniques that have the potential to relieve mental and physical stress; emphasis on development of skills related to mental and physical health.

H&S **355 Accident Control, Prevention, and Human Ecology** (2 cr). The study of accidents, accident prevention, and injury control in variety of settings within society; emphasis on human resources impact. (Alt/yrs)

H&S **WS390 Athletic Training High School Practicum** (1-4 cr, max 4). WSU Ath T 390.

H&S **WS391 Athletic Training Sports Medicine Practicum** (1-4 cr, max 4). WSU Ath T 391.

H&S **400** (s) **Seminar** (cr arr). Prereq: perm.

H&S **403** (s) **Workshop** (cr arr). Prereq: perm.

H&S **404** (s) **Special Topics** (cr arr). Prereq: perm.

H&S **410 Athletic Rehabilitation and Administration** (2 cr). Rehabilitation techniques for reconditioning following specific injuries and surgeries; administrative topics include facilities, budgeting, and legalities.

H&S **412 Emergency Response Instructorship** (1 cr). Develop skills and knowledge to train others in emergency response. Successful participants will receive emergency response instructor certification. Prereq: H&S 150, H&S 288, and perm.

H&S **J423/J523 Health Education Methods and Administration** (3 cr) (H&S 323). Curriculum design, organization and administration, methods and strategies, and resource materials for teaching health in school and community health setting. Team leadership project and activity required for grad cr. Prereq: H&S 150.

H&S **431 Practicum: Student Teaching** (7 or 14 cr). Supervised student teaching at the intermediate and/or secondary levels (grades 6 through 12). Double majors select the 7-cr option; all other students select the 14-cr option. Credits earned in this course may not be applied to total credits needed for the school and community health education major. Graded P/F. Prereq: admission to teacher education, H&S 323, ED 312 and 314, cumulative GPA of 2.5, and perm of dept. (Submit application to director of clinical experiences in the College of Education by December 1 of the school year before enrolling.)

H&S **J436/J536 Health Promotion Program Planning** (3 cr). Provides in-depth study of program planning, implementation and evaluation of health promotion/wellness programs in a variety of settings, including workplace and community. Students obtain hands-on experience planning a health promotion program. Special emphasis on competencies necessary for the health educators to function in a variety of community settings. Additional projects reqd for grad cr. Prereq: H&S 150 and perm.

H&S **440 Driver Education I** (3 cr). Methods, organization, and administrative techniques; development of habits, attitudes, knowledge, and skills. Prereq: valid driver's license and perm.

H&S **449 Driver Education II** (3 cr). Special fee course. Continuation of H&S 440. Advanced preparation in principles and practice of driver and traffic safety education for teachers, supervisors, and administrators; emphasis on new and broader teaching competencies in traffic safety. Lab work and safety projects reqd. In addition to lec, 6-10 hrs of practicum reqd during semester. Prereq: H&S 440, valid driver's license, satisfactory driving record, and perm.

H&S **J450/J550 Consumer Health and Health Care Issues** (2 cr). Examination of major personal health and health care consumer issues including advertising, labeling, health insurance, Medicare, health care services, over-the-counter drugs, disease prevention and control, health fads, detection of health fraud and quackery, sources of consumer protection, and other topics of interest to the consumer. Term project reqd for grad cr. Prereq: H&S 150.

H&S **455 Design & Analysis of Research in HPERD** (3 cr). Same as PEP 455 and Rec 455. This course is designed to survey the basic types of research methods often found in health, physical education, sport science, and recreation. A variety of research designs and computerized statistical analyses are studied to help students understand the systematic nature of problem solving. Various research problems as they relate to health, physical education, recreation, and human performance are discussed for the purpose of identifying the broad and diverse nature of research in the movement, leisure, and health professions. Prereq: Jr or Sr standing.

H&S **WS465 Medical Aspects of Athletic Injuries** (1 cr). WSU Ath T 465.

H&S **WS466 Athletic Training Evaluation** (3 cr). WSU Ath T 466.

H&S **WS467 Athletic Training Rehabilitation** (3 cr). WSU Ath T 467.

H&S **WS468 Athletic Training Modalities** (3 cr). WSU Ath T 468.

H&S **WS469 Athletic Training Organization and Administration** (3 cr). WSU Ath T 469.

H&S **495** (s) **Practicum in Tutoring** (1 cr, max arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

H&S **498 Internship in Health/Safety** (cr arr). Supervised field work. Graded P/F. Prereq: Rec 445 and sr standing.

H&S **499** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **501** (s) **Seminar** (cr arr). Prereq: perm.

H&S **502** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **503** (s) **Workshop** (cr arr). Prereq: perm.

H&S **504** (s) **Special Topics** (cr arr). Prereq: perm.

H&S **505** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

**H&S 523 Health Education Methods and Administration** (3 cr). See J423/J523.

H&S **536 Health Promotion Program Planning** (3 cr). See H&S J436/J536.

H&S **550 Consumer Health and Health Care Issues** (2 cr). See H&S J450/J550.

# History

**Katherine G. Aiken, Chair, Dept. of History (315 Admin. Bldg. 83844-3175; phone 208/885-6253).**

PREREQUISITE: Two-semester courses in this field may be taken in either order. Students may enroll in second-semester courses without having had the first. Ordinarily six lower-division credits in history are advised for registration in upper-division courses.

Note: In jointly numbered courses, additional projects/assignments are required for graduate credit.

Hist **101-102 History of Civilization** (3 cr) (C). *May be used as core credit in J-3-e.* Contributions to the modern world. Hist 101: to 1650. Hist 102: 1650 to present.

Hist **111-112 Introduction to U.S. History** (3 cr) (C). Political, diplomatic, economic, social, and cultural history; earliest times to the present. Hist 111: to 1877. Hist 112: 1877 to present.

Hist **180 Introduction to East Asian History** (3 cr). Survey of traditional and modern Chinese and Japanese history.

Hist **210 Introduction to Modern Latin American History** (3 cr). Survey of economic, political, social, and cultural developments in selected Latin American countries, each of which represents a large region, from independence to the present; emphasis on cultural uniqueness, economic development, pressures for social change, and mass political movements.

Hist **290 The Historian's Craft** (3 cr). Introduction to the discipline of history, basic skills for course work and research, and major schools of historical writing.

Hist **313 Red, White, and Black: The Peopling of Early North America** (3 cr). Survey; Native American, Euroamerican, and Afro-American heritage in North America, 1400-1790.

Hist **315 Comparative African-American Cultures** (3 cr). An overview of African American history in the U.S. from the late 19th century to the present; comparisons with the experience of African Americans in other parts of the Americas; study of important personalities and historical forces that have influenced African Americans and the societies in which they live.

Hist **331 The Age of African Empires** (3 cr). Survey of the history of Africa south of the Sahara to 1800.

Hist **357 Women in Pre-Modern European History** (3 cr). Survey of historical experience of women from the Greeks through the 17th century.

Hist **371-372 History of England** (3 cr) (C). Political, social, economic, and religious development of the British Isles. Hist 371: to 1688. Hist 372: 1688 to present.

Hist **J401/J501** (s) **Seminar** (cr arr). Research papers in U.S., Latin American, ancient, English, or European history. Prereq: perm of dept.

Hist **404** (s) **Special Topics** (cr arr). Prereq: perm.

Hist **J407/J507** (s) **Colloquium in European History** (cr arr). Reading and analyzing historical literature in European history.

Hist **J408/J508** (s) **Colloquium in Latin American History** (cr arr). Reading and analyzing historical literature in Latin American history.

Hist **J409/J509** (s) **Colloquium in American History** (cr arr). Reading and analyzing historical literature in American history.

Hist **J411/J511 Colonial North America, 1492-1763** (3 cr). Native American societies; Spanish, French, and English colonization; international rivalries, 1492-1763.

Hist **J412/J512 Revolutionary North America and Early National Period, 1763-1828** (3 cr). Era of the American War of Independence; Confederation; Early Nationhood, 1763-1828.

Hist **J415/J515 Civil War and Reconstruction, 1828-1877** (3 cr). Sectionalism, westward expansion, slavery, the Civil War and Reconstruction.

Hist **J416/J516 Rise of Modern America, 1877-1900** (3 cr). Industrial and economic development, political reform, populism.

Hist **J417/J517 United States, 1900-1945** (3 cr). Populism, Progressivism, World War I, the Twenties, the Depression, the New Deal, and World War II.

Hist **J418/J518 Recent America, 1945-Present** (3 cr). America since 1945.

Hist **J419/J519 Twentieth-Century American West** (3 cr). History of the 11 Rocky Mountain and Pacific states from 1900 to the present.

Hist **J420/J520 History of Women in American Society** (3 cr). Examination of the roles of women--social, economic, and political--in U.S. history from colonial times to the present.

Hist **422 The American Landscape** (3 cr). Using a regional approach to study the development of North America during the past three centuries, viewing and appreciating history as reflected in the continent's changing landscapes and built environment.

Hist **J423/J523 Idaho and the Pacific Northwest** (3 cr) (C, 423 only). Political, economic, social development; earliest times to the present.

Hist **J424/J524 American Environmental History** (3 cr). History of changing American attitudes and actions toward the environment over three centuries.

Hist **WS-J427/WS-J527 Public History: Theory and Methodology** (3 cr). WSU Hist 427/527.

Hist **J428/J528 History of the American West** (3 cr). Spanish beginnings, Anglo-French expansion, the American occupancy, 1540 to present.

Hist **J429-J430/J529-J530 U.S. Diplomatic History** (3 cr). Hist J429/J529: from independence to world power, 1763-1898. Hist J430/J530: world power through war and the quest for peace, 1898 to present.

Hist **J431/J531 History of Indian-White Relations** (3 cr). Survey 1400 to present; dynamics and themes of Indian history with emphasis on Indian-White relations in the U.S.

Hist **J435/J535 Latin America: The Colonial Era** (3 cr). Indian civilization, European colonization, Spanish Imperial System, wars of independence.

Hist **J438/J538 Modern Mexico** (3 cr). Survey and analysis of political, economic, social, and cultural aspects from independence to present; emphasis on Iberian and Amerindian legacies, economic development, relations with U.S., and social revolution of 1910-1920.

Hist **J439/J539 Modern Latin America** (3 cr). Political, economic, social, and cultural development; search for stability; growth of nationalism.

Hist **J440/J540 Social Revolution in Latin America** (3 cr). Analysis and comparison of 20th-century social revolution in selected Latin American countries: Cuba and two others; emphasis on origins of movements for social change, economic development issues, impact of the revolutions, and relations between new governments and the U.S.

Hist **J441/J541 Comparative Slavery and Emancipation in the Atlantic World** (3 cr). Analysis of the way in which African slavery became the predominant labor force in the Americas.

Hist **J442/J542 The Medieval Church: Europe in the Early and High Middle Ages** (3 cr). Hist 442 same as RelS 442. Evolution of medieval Christian society from reign of Constantine (c. 300) to pontificate of Innocent III (1215), as expressed in monastic and mendicant orders, crusades, 12th-century Renaissance, and heresy.

Hist **J443/J543 The Medieval State: Europe in the High and Late Middle Ages** (3 cr). Analysis of how the vitality of particular medieval princes, of the commercial revolution, and of such movements as development of common law was harnessed in the evolution of medieval government from feudalism to the modern state.

Hist **444 Ancient Greek Civilization** (3 cr). See FLEN 441.

Hist **445 Medieval English Constitutional and Legal History: 1066-1485** (3 cr). The study of the origins and development of English law and the English constitution during the Middle Ages.

Hist **446 Civilization of Ancient Rome** (3 cr). See FLEN 442.

Hist **J447/J547 The Age of the Renaissance and the Reformation** (3 cr). Hist 447 same as RelS 447. Survey of European history and society through changes wrought by the Renaissance, the Explorations, and the Reformation.

Hist **J451/J551 Age of the French Revolution** (3 cr). Nature of the Old Regime; relationship between the Enlightenment and the French Revolution; aims, progress, and consequences of the revolution itself; Europe, 1650-1815.

Hist **J452/J552 19th Century Europe** (3 cr). Nationalism and nation-building; Imperialism and the Great Powers; Capitalism and Socialism; tensions and rivalries leading to WWI.

Hist **J455/J555 20th Century Europe** (3 cr). World Wars, revolutions, and totalitarianism; decline and fall of the European empires; rise of a New Europe.

Hist **456 Anti-Semitism and the Holocaust** (3 cr). The roots and character of European anti-Semitism from the Roman Empire to the Nazis and beyond; special focus on the Third Reich and World War II.

Hist **J457/J557 History of the Middle East** (3 cr). Survey of the Middle East from the beginning of the Islamic period to the present.

Hist **J458/J558 Military History** (3 cr). Survey of military history from ancient times to present; emphasis on interrelationship of war, society, and technology.

Hist **J466/J566 Eastern Europe Since 1774** (3 cr). Nationality, nation-building, and dissolution; emphasis on Poland, the Habsburg Empire, and the Balkans.

Hist **J467/J567 Russia to 1894** (3 cr). Russia from medieval origins to 1894; development of Tsarist autocracy and serfdom; reaction, reform, and rise of the revolutionary movements.

Hist **J468/J568 Russia and Soviet Union Since 1894** (3 cr). The last years of Tsarism; revolutions of 1905 and 1917; development of the Soviet Union under Lenin, Stalin, and their successors.

Hist **J469/J569 Modern France** (3 cr). French nation from 1815 through the De Gaulle era.

Hist **J470/J570 Modern Germany, 1815-present** (3 cr). Development of Germany from pre-Bismarck era to present; parallel developments in the Habsburg monarchy and Austrian Republic.

Hist **J482/J582 Japan, 1600 to Present** (3 cr). Western impact on the political, cultural, and economic fabric of Japanese society.

Hist **J483/J583 Traditional Chinese Civilization** (3 cr). Survey from prehistoric beginnings through 1840s.

Hist **J484/J584 Modern China, 1840s to Present** (3 cr). Last century of Qing dynasty, 1911 Revolution and Republican experiment, Revolution of 1949, and People's Republic of China.

Hist **485 Chinese Social and Cultural History** (3 cr). Survey of Chinese culture and traditions during the first millennium.

Hist **499** (s) **Directed Study** (cr arr). Prereq: perm.

Hist **500 Master's Research and Thesis** (cr arr).

Hist **501** (s) **Seminar** (cr arr). See Hist J401/J501.

Hist **502** (s) **Directed Study** (cr arr). Prereq: perm.

Hist **504** (s) **Special Topics** (cr arr). Prereq: perm.

Hist **507** (s) **Colloquium in European History** (cr arr). See Hist J407/J507.

Hist **508** (s) **Colloquium in Latin American History** (cr arr). See Hist J408/J508.

Hist **509** (s) **Colloquium in American History** (cr arr). See Hist J409/J509.

Hist **511 Colonial North America, 1492-1763** (3 cr). See Hist J411/J511.

Hist **512 The American Revolution, 1763-1789** (3 cr). See Hist J412/J512.

Hist **515 Civil War and Reconstruction, 1828-1877** (3 cr). See Hist J415/J515.

Hist **516 Rise of Modern America, 1877-1900** (3 cr). See Hist J416/J516.

Hist **517 United States, 1900-1945** (3 cr). See Hist J417/J517.

Hist **518 Recent America, 1945-Present** (3 cr). See Hist J418/J518.

Hist **519 Twentieth-Century American West** (3 cr). See Hist J419/J519.

Hist **520 History of Women in American Society** (3 cr). See Hist J420/J520.

Hist **523 Idaho and the Pacific Northwest** (3 cr). See Hist J423/J523.

Hist **524 American Environmental History** (3 cr). See Hist J424/J524.

Hist **WS527 Public History: Theory and Methodology** (3 cr). See Hist J427/J527.

Hist **528 History of the American West** (3 cr). See Hist J428/J528.

Hist **529-530 U.S. Diplomatic History** (3 cr). See Hist J429-J430/J529-J530.

Hist **531 History of Indian-White Relations** (3 cr). See Hist J431/J531.

Hist **535 Latin America: The Colonial Era** (3 cr). See Hist J435/J535.

Hist **538 Modern Mexico** (3 cr). See Hist J438/J538.

Hist **539 Modern Latin America** (3 cr). See Hist J439/J539.

Hist **540 Social Revolution in Latin America** (3 cr). See Hist J440/J540.

Hist **541 Comparative Slavery and Emancipation in the Atlantic World** (3 cr). See Hist J441/J541.

Hist **542 The Medieval Church: Europe in the Early and High Middle Ages** (3 cr). See Hist J442/J542.

Hist **543 The Medieval State: Europe in the High and Late Middle Ages** (3 cr). See Hist J543/J543.

Hist **547 The Age of the Renaissance and the Reformation** (3 cr). See Hist J447/J547.

Hist **551 Age of the French Revolution** (3 cr). See Hist J451/J551.

Hist **552 19th Century Europe** (3 cr). See Hist J452/J552.

Hist **555 20th Century Europe** (3 cr). See Hist J455/J555.

Hist **557 History of the Middle East** (3 cr). See Hist J457/J557.

Hist **558 Military History** (3 cr). See Hist J458/J558.

Hist **566 Eastern Europe Since 1774** (3 cr). See Hist J466/J566.

Hist **567 Russia to 1894** (3 cr). See Hist J467/J567.

Hist **568 Russia and Soviet Union Since 1894** (3 cr). See Hist J468/J568.

Hist **569 Modern France** (3 cr). See Hist J469/J569.

Hist **570 Germany and Central Europe Since 1815** (3 cr). See Hist J470/J570.

Hist **582 Japan, 1600 to Present** (3 cr). See Hist J482/J582.

Hist **583 Traditional Chinese Civilization** (3 cr). See Hist J483/J583.

Hist **584 Modern China, 1840s to Present** (3 cr). See Hist J484/J584.

Hist **591-592 Historiography** (3 cr). Nature of history; major historians; ideas in history; philosophy of history; bibliography. Hist 591: U.S. historians. Hist 592: European and British historians.

Hist **597 Practicum: Teaching College History** (1 cr, max 4). Required for graduate students assigned to survey course sections. Does not satisfy 78-cr requirement for doctorate. Graded P/F. Prereq: perm of dept chair.

Hist **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Hist **600 Doctoral Research and Dissertation** (cr arr).

# Hydrology

**Dennis J. Geist, Head, Dept. of Geological Sciences (320 Mines Bldg. 83844-3022; phone 208/885-6192).**

Hydr **409 Quantitative Hydrogeology** (3 cr). Same as GeoE 409. A rigorous introduction to the description of flow in porous media; the basic equations of potential flow theory as they relate to groundwater problems, with application to common engineering problems encountered by hydrogeologists and engineers; dimensional analysis, properties assignment, and heterogeneous systems. Prereq: Math 275, Stat 251 or 301, or perm.

Hydr **412 Environmental Hydrogeology** (3 cr). Methods of hydrogeologic site characterization for the delineation of environmental problems such as contaminated ground water plumes, and ground water dewatering for landslide remediation. Prereq: Geol 309 or Hydr 463.

Hydr **413 Applied Hydrogeologic Concepts** (3 cr). Quantitative methods for the estimation of aquifer coefficients related to groundwater resource evaluations. Prereq: Geol 309 or Hydr 463.

Hydr **J463/J563 Hydrogeology** (3 cr). Same as GeoE J463/J563. Equations governing single fluid flow through saturated porous media under various geologic conditions; models, general relations between flow systems and water quality, and between surface and ground water. Additional projects/assignments reqd for grad cr. Prereq: Math 275 or perm.

Hydr **J468/J568 Aquifer Test Design and Analysis** (3 cr). Same as GeoE J468/J568. Analysis of single and multiple well aquifer tests in a range of hydrogeologic environments. Additional projects/assignments reqd for grad cr. Prereq: Hydr 463 or 563.

Hydr **ID-J470/ID-J570 Groundwater Remediation** (3 cr). Evaluation of techniques for remediation of groundwater contamination problems. Additional projects/assignments reqd for grad cr. Prereq: Geol 309.

Hydr **ID-J472/ID-J572 Groundwater Management** (3 cr). WSU C E 578. Hydrologic, economic, and legal factors controlling development and management of groundwater resources. Additional projects/assignments reqd for grad cr. Prereq or coreq: Geol 309 or Hydr 463.

Hydr **ID-J475/ID-J575 Design and Construction of Water Wells** (3 cr). Same as GeoE ID-J480/ID-J580. WSU C E 506. Analysis of geologic and engineering factors important in design, construction, operation, and maintenance of water wells. Additional projects/assignments reqd for grad cr. Prereq or coreq: Geol 309 or Hydr 463.

Hydr **500 Master's Research and Thesis** (cr arr).

Hydr **501** (s) **Seminar** (cr arr). Graded P/F. Prereq: perm.

Hydr **502** (s) **Directed Study** (cr arr). Prereq: perm.

Hydr **503** (s) **Workshop** (cr arr). Prereq: perm.

Hydr **563 Hydrogeology** (3 cr). See Hydr J463/J563.

Hydr **WS566 Groundwater Geochemistry** (4 cr). WSU C E and Geol 579. Processes controlling the quality and chemistry of groundwater; applications to geologic and water resource problems. Two lec and one 2-hr lab a wk. Prereq: Geol 309 or perm.

Hydr **568 Aquifer Test Design and Analysis** (3 cr). See Hydr J468/J568.

Hydr **569 Contaminant Hydrogeology** (3 cr). Characteristics of contaminant migration in ground water systems including analysis of field problems. Prereq: Geol/GeoE 309 or Hydr J463/J563 and Math 175.

Hydr **ID570 Groundwater Remediation** (3 cr). See Hydr J470/J570.

Hydr **ID572 Groundwater Management** (3 cr). See Hydr J472/J572.

Hydr **ID575 Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

Hydr **ID576 Fundamentals of Modeling Hydrogeologic Systems** (3 cr). WSU Geol 576. Development and application of models representing physical systems, with particular emphasis on groundwater flow. Development and solution of the basic equations of potential flow will be covered, along with their assumptions and limitations. Properties assignment, parameter sensitivity, and dimensional analysis will also be discussed. The course will emphasize when modeling is appropriate, how to design a model, and how properties should be selected to achieve meaningful results. Prereq: Math 275 and Hydr 563 (or equiv), or perm.

Hydr **577 Computer Applications in Geohydrology** (3 cr). Numerical modeling of groundwater systems with particular emphasis on finite difference methods. Prereq: Hydr 576.

Hydr **579 Hazardous Waste Site Remediation Design** (3 cr). See ChE 579.

Hydr **581** **Hydrogeological Data Analysis** (3 cr). Techniques in the analysis of data, with emphasis on groundwater systems; exploratory analysis of data, coping with spatial variability in hydrogeologic properties, and techniques for the analysis of temporally variable piezometric surfaces. Prereq: Geol 309 (or equiv) and Math 175, or perm.

Hydr **597** (s) **Practicum** (cr arr). Prereq: perm.

Hydr **598** (s) **Internship** (cr arr). Prereq: perm.

Hydr **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Industrial Technology Education

**James A. Gregson, Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).**

ITED **110 Technology and Society** (3 cr). See ACTE 110.

ITED **111 Computer Skills** (3 cr). See BuEd 111.

ITED **115 Operational Safety** (3 cr). Fundamentals of industrial safety; fire protection, industrial hygiene, radiological safety, safety regulations.

ITED **120 Principles of Technology** (4 cr) (C). Application of physical science in industrial situations; emphasizes principles rather than specifics of technology; illustrates application of mathematics associated with these principles. Three lec and 4 hrs of lab a wk. Enrollment per section limited to lab stations available.

ITED **130 Basic Electronics** (4 cr) (C). For beginning students with no experience in electricity; properties of resistors, capacitors, and inductors in electrical circuit; basics of power distribution system and house wiring; use of meters and oscilloscopes in lab. Three 1-hr lec and one 2-hr lab a wk. Enrollment per section limited to lab stations available. Knowledge of algebra recommended.

ITED **135 Electrical Systems** (3 cr). Fundamentals of AC/DC circuits and components, motors, transformers, and switchgear, national electrical code wiring requirements.

ITED **200** (s) **Seminar** (cr arr). Prereq: perm.

ITED **203** (s) **Workshop** (cr arr). Prereq: perm.

ITED **204** (s) **Special Topics** (cr arr). Prereq: perm.

ITED **210 Introduction to Industrial Efficiency** (3 cr). Introduction to techniques used by industrial engineers to optimize operations.

ITED **211 Introduction to Quality Assurance** (3 cr). Overview; emphasis on nuclear industry; planning, managing, conducting, and evaluating quality assurance program.

ITED **213 Technical Sketching** (2 cr). Sketching techniques applied to industrial drawing; emphasis on sketching or mechanical drawings, pictorials, and architectural forms. One lec and 1 hr of lab a wk.

ITED **217 Principles of Dimensional Inspection** (3 cr). Concepts, principles, classification, and control in dimensional inspection for quality assurance.

ITED **218 Power, Energy, and Transportation Technology Systems** (4 cr) (C). Internal-external combustion engines; solar, wind, water, biomass, and nuclear energy; lab experience in generating, transporting, and converting energy forms. Enrollment per section limited to lab stations available. Three lec and 4 hrs of lab a wk.

ITED **237 Integrated Circuits and Semiconductor Devices** (3 cr). Basic theory and application of field effects transistors, integrated circuits, op-amps, optoelectronic devices, and miscellaneous semiconductor devices. Enrollment per section limited to lab stations available. Prereq: ITED 130 or equiv.

ITED **238 Digital Electronics** (3 cr). Basic logic circuits used in digital devices; included AND/OR gates, NAND, NOR, Exclusive-or gates, and application of the gates to construct flip-flops, counters, adders, and converters; includes characteristics of logic families and memory devices. Enrollment per section limited to lab stations available. Prereq: ITED 237 or equiv.

ITED **250 Manufacturing Technology Systems** (4 cr). Intro to manufacturing theory, applications, and processes including research and development, starting and organizing manufacturing companies, and product production and marketing. Two lec and 6 hrs of lab a wk.

ITED **253 Advanced Manufacturing Systems Technology** (4 cr) The first phrase of the class concentrates on industrial system manufacturing processing; the second phase on manufacturing organization and management; both phases address societal, environmental, and labor relations of manufacturing. Three lec and 3 hrs of lab a wk. Prereq: ITED 250 or perm.

ITED **263 Structures and Concrete Design** (3 cr). Column and beams design and selection, use of steel construction handbook joint design; simple concrete slab and wall design. Note: Will not substitute for engineering degree requirement.

ITED **265 Computer Aided Drafting/Design** (2 cr) (C). Application of fundamental principles of computer aided drafting and design; theory of and skill development in file creation, digitizing, plotting, and computer assisted design. One lec and 2 hrs of lab a wk.

ITED **270 Technical Competence** (1-10 cr, max 10). Technical competence is gained from experience in areas of concentration related to the bachelor of science degree in vocational education or technology. Grades for successful completion of ITED/PTE 270, 370, and 470 will be transcripted as P (pass) normally during the student's last semester and completion of all degree requirements. Max 32 cr in any combination of ITED 270, 370, 470, 490, 491, and 492.

ITED **280 Construction Technology Systems** (4 cr) (C). Systems approach to construction technology including residential, commercial, and civil. Three lec and 4 hrs of lab a wk. Enrollment limited to lab stations available.

ITED **299** (s) **Directed Study** (cr arr). Prereq: perm.

ITED **310 Principles of Safety** (3 cr). Applications of safety construction, operations, industry for safety, industrial hygiene, and fire protection. Prereq: Stat 251, Math 143.

ITED **312 Applied Electronics** (3 cr). Advanced properties and components of electronic circuits and systems. Prereq: Math 143, 144.

ITED **314 Principles of Total Quality Management and Quality Assurance** (3 cr). Total quality management, and quality assurance principles and processes as applied in industry including conducting, management, and evaluation. Prereq: Stat 251.

ITED **328 Computer Operating Systems for Technology** (4 cr) (C). Advanced DOS, multi-tasking and network operating systems, planning and maintenance of computer systems. Three lec and 4 hrs of lab a wk. Enrollment per section limited to computer stations available. Prereq: BuEd/ITED 111 or perm.

ITED **330 Industrial Instrumentation I** (3 cr). Use of electronic circuits and devices for process parameter measurements.

ITED **331 Industrial Instrumentation II** (3 cr). Methods of process control from digital and analog signals; investigation of computer control concepts.

ITED **333 Computer Electronics** (3 cr). Logic of circuits, basic circuits used in computers, and interfacing hardware for computer peripherals.

ITED **338 Thermal and Fluid Fundamentals for Technology** (3 cr). Fundamentals of statics, fluid mechanics, thermodynamics, and heat transfer for use in the industrial technology field. Three lec and 4 hrs of lab a wk. Prereq: Math 170, Phys 211, Chem 101; strongly recommended: biochemistry, human physiology.

ITED **340 Nondestructive Examination Techniques and Methods** (3 cr). Intro to nondestructive testing, liquid penetrant exam, magnetic particle exam, and radiography in modern industry.

ITED **360 Communication Technology Systems** (4 cr) (C). Study of communication technology including sub systems of interpersonal human communication and communication between humans and machines. Two lec and 6 hrs of lab a wk.

ITED **362 Environmental Health** (3 cr). Types, mechanisms, and magnitudes of toxicity and their relation to the human system as an industrial environmental problem; all types of metals, compounds, and reagents and their influence on human productivity; sampling and analysis of contaminants.

ITED **363 Fire Protection Safety** (3 cr). Basic industrial fire protection techniques; basic fire chemistry; basic fire suppression/sprinkler design.

ITED **364 Hazardous Materials** (3 cr). Handling, transportation, and storage of hazardous materials; how to protect and suppress fires that occur in hazardous materials.

ITED **365 Industrial Supervision** (3 cr). Principles and practices; duties and responsibilities of plant supervisors; use of rating scales and other employee evaluation devices; supervisory methods used in on-the-job and in-plant training program; methods of conducting job analysis; preparation and use of job descriptions. (Alt/yrs)

ITED **370 Technical Competence** (1-10 cr, max 10). See ITED 270.

ITED **380 Computer Numerical Control Manufacturing** (4 cr) (C). Overview; advanced computer aided drafting, computer aided manufacturing, computer numerical control, and robotics, with lab applications. Enrollment per section limited to lab stations available. Three lec and 3 hrs of lab a wk. Prereq: ITED 265.

ITED **382 Computer Hardware Technology** (3 cr) (C). Hardware and software knowledge and skills necessary to purchase, maintain, and repair personal computer systems; not a beginning computer class. Three lec and 3 hrs of lab a wk. Recommended preparation: knowledge of disk operating systems and multi-tasking systems.

ITED **400** (s) **Seminar** (cr arr). Prereq: perm.

ITED **401 Principles of Quality Assurance** (3 cr). Preparation for Quality Engineering Certificate Exam offered by American Society for Quality Control.

ITED **403** (s) **Workshop** (cr arr). Prereq: perm.

ITED **404** (s) **Special Topics** (cr arr). Prereq: perm.

ITED **J415/J515 Microcomputer Applications** (3 cr). See BuEd J415/J515.

ITED **J419/J519 Information Processing Management** (3 cr). See BuEd J419/J519.

ITED **426 Instructional Design and Curriculum** (3 cr). See ACTE J426/J526.

ITED **429 Student Organizations** (1 cr, max 4). Intro to industrial technology student organizations, including organization, planning, implementation, and evaluation of student activities for industrial technology student organizations. One-half hr lec and 2-1/2 hrs of lab a wk.

ITED **430 Systems Safety Analysis** (3 cr). Principles of system safety; defining a system; risk and consequences; introduction to hazard and risk analyses; systemic accident investigation.

ITED **433 Quality Auditing** (3 cr). Industrial value of audit as a management tool; audit methods and techniques; present practical examples related to real-life applications and benefits.

ITED **434 Quality Assurance Organization and Management** (3 cr). Industrial management principles applied to effective economic control of quality assurance activities.

ITED **435 Industrial Transportation Safety** (3 cr). Principles of safety in all aspects of industrial transportation; roads, railroads, air, water, pipeline.

ITED **440 Piping Systems** (3 cr). System and component selection and specifications, stress calculations, hanger design, schedules and pressure rating. Prereq: ITED 338.

ITED **442 Concrete Design** (3 cr). Structures and component selection and specification, stress calculations hanger design, schedules and pressure rating. Prereq: ITED 338.

ITED **443 Government Contract Law** (3 cr). Contract formation, and contract administration pertaining to government contracts.

ITED **444 Telecommunications** (3 cr). Same as ED 444. Advanced experimental telecommunications theory, telecommunications equipment, and data communications; applications of telecommunications theory and principles at work, at school, and in personal endeavors. Three lec and 2 hrs of lab a wk.

ITED **446 Labor Law** (3 cr). Practical legal considerations in employer/employee relationships, including union contracts.

ITED **448 Construction Safety Principles** (3 cr). Major components of construction health and safety, including hazards, law, written programs, implementation, control and behavior.

ITED **450 Industrial Safety** (3 cr). See PTE 450.

ITED **451 School Lab Planning and Administration** (3 cr). See PTE 451.

ITED **452 Fire Protection System Design** (3 cr). Methods and practical design of fire protection systems (water, gas, chemicals); testing and maintenance of systems. Prereq: perm.

ITED **454 Environmental Health II** (3 cr). Intro of human system response and susceptibility to problems of occupation originating from air conditioning, air cleaning, ventilation, respiratory devices, air pressure, noise, lighting, temperature, and radiation; identification, documentation, and reporting of problems and results.

ITED **456 Environmental Monitoring** (3 cr). Advanced study of personal and area illumination, temperature, ventilation, gas/vapor, biological/ergonomics, noise. Prereq: ITED 362.

ITED **458 Permit Processing** (3 cr). Preparing, processing, implementing, permit requirements, permitting authorities (local, state, federal).

ITED **460 Desktop Publishing** (3 cr) (C). See BuEd 460.

ITED **465 Environmental Regulations** (3 cr). Survey of major environmental statutes and their implementing regulations; emphasis on practical applications.

ITED **470 Technical Competence** (1-12 cr, max 12). See ITED 270.

ITED **472 Industrial Technology Teaching Methods** (3 cr). Dem, lec, and problem solving; preparation and use of instructional aids, individual instruction sheets, and programmed instructional materials.

ITED **475 LAN Technology** (4 cr). Advanced LAN technologies emphasizing design and implementation of most LAN technology systems. Three lec and 4 hrs of lab a wk. Prereq: ITED 328 or Bus 352 or perm.

ITED **485 Waste Management Alternatives** (3 cr). Basic introduction to waste management including regulatory, technical, and political implications of waste management.

ITED **490-491-492 Advanced Technical Competence** (1-10 cr, max 30). Supervised practicum or on-the-job experience designed to enable the student to gain further depth in technical competence as well as in current industrial technology. Graded P/F. Max 32 cr in any combination of ITED 270, 370, 470, 490, 491, and 492.

ITED **499** (s) **Directed Study** (cr arr). Prereq: perm.

ITED **500 Master's Research and Thesis** (cr arr).

ITED **501** (s) **Seminar** (cr arr). Prereq: perm.

ITED **502** (s) **Directed Study** (cr arr). Prereq: perm.

ITED **503** (s) **Workshop** (cr arr). Prereq: perm.

ITED **504** (s) **Special Topics** (cr arr). Prereq: perm.

ITED **510** (s) **Professional Problems** (1-3 cr, max 9). Prereq: perm.

ITED **511** (s) **Technical Problems** (1-3 cr, max 6). Prereq: perm.

ITED **515 Microcomputer Applications** (2-3 cr). See BuEd J415/J515.

ITED **518 Industrial Liability** (3 cr). Workman's compensation, second injury, insurance and self-insurance; third party responsibilities; product liability, personal liability; plant damage.

ITED **519 Information Processing Management** (3 cr). See BuEd J419/J519.

ITED **520 Occupational Health Hazards** (3 cr). Field of industrial hygiene practice; focus on recognition, evaluation, and control of occupational health hazards.

ITED **521 Accident Investigation** (3 cr). System safety concepts, principles, and methods; development of skills in accident investigation, audit and appraisal, operational readiness, and system safety analysis and review. Prereq: ITED 430.

ITED **522 Risk Assessment** (3 cr). Analysis techniques used to determine the risk of industrial, process, nuclear, and aviation industries; fault tree analysis; human reliability analysis; failure mode and effect analysis.

ITED **523 Industrial Safety Applications** (3 cr). Application of engineering science to safety problems; static and dynamic forces on structures, pressure systems; effects of temperature, chemicals, fatigue, and other agencies on strength of materials; use of vectors in engineering analysis.

ITED **543 Administration and Supervision of Learning Programs** (3 cr). See ACTE 543.

ITED **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Interdisciplinary Studies

**Kurt O. Olsson, Undergraduate Program Coordinator (112 Admin. Bldg. 83844-3154; phone 208/885-6426); Roger P. Wallins, Graduate Program Coordinator (112 Morrill Hall 83844-3017; phone 208/885-6243).**

Intr **101** (s) **Freshman Transition Seminar** (2 cr). Open to freshmen; open to other students with permission. Cr not given for both Intr 101 and 102. Development of strategies for setting academic goals and coping with course work; includes study strategies, university orientation, learning styles, purpose of college, career options.

Intr **102** (s) **Freshman Interest Group** (2 cr). Open to freshmen; open to other students with permission. Cr not given for both Intr 101 and 102. Each seminar is organized around a topic of mutual interest; students study the seminar topic as well as a variety of transition topics such as college study skills and campus resources.

Intr **103 Integrated Science for Elementary Education Majors** (4 cr). Scientific method, physics and chemistry of atoms and molecules, molecules of life, chemical energy and thermodynamics, cellular structure, electrical circuits, tissues and organs. Two 3-hr class meetings a wk. Prereq: Math 143 and elementary ed major.

Intr **104 Integrated Science for Elementary Education Majors** (4 cr). Physics and biology of light, magnets and motors, geological evolution of the earth, forces shaping the earth, meteorology, fossil record and evolution, DNA and genetics, ecology, and topical issues in science. Two 3-hr class meetings a wk. Prereq: Intr 103.

Intr **105 Freshman Interest Group: Career Decision-Making** (2 cr). Not open to students who have taken the career decision-making section of Intr 102. Provides student with an understanding of the career decision-making process; explores students' interests and abilities; provides overview of possible majors and careers through readings, activities, Internet exploration, and interviews with students, faculty, staff, and UI alumni; assists students with development of resume-writing skills.

Intr **106 Freshman Interest Group: Service Learning** (2 cr). Open to freshmen; open to other students with permission. Learning that combines community service with classroom instruction; working with local agencies, exploring service in contexts such as citizenship and activism; using service experiences to enhance communication, critical thinking, and group problem solving; and learning more about society, social relationships, and self.

Intr **126 Film and International Culture** (3 cr). *May be used as core credit in J-3-d.* Interdisciplinary approach to diversity of modern culture as reflected in film art; comparative study of U.S. and foreign cultures; intro to film history, techniques, and criticism.

Intr **200** (s) **Seminar** (cr arr). Prereq: perm.

Intr **201 Skill Building for Career Decision-Making** (1 cr). Accelerated 8-week course focusing on helping students understand the process of career development and develop career decision-making skills; learning how to assess the characteristics important in selecting a major or career and how to use these characteristics in exploring potential choices; emphasis on experiential learning.

Intr **204** (s) **Special Topics** (cr arr). Prereq: perm.

Intr **299** (s) **Directed Study** (cr arr). Prereq: perm.

Intr **300** (s) **Seminar** (cr arr). Prereq: perm.

Intr **394 Technology and Societal Decisions** (3 cr). Engineering approach to decision making in society, including evaluation of alternatives based upon economic, social, and human values.

Intr **400** (s) **Seminar** (cr arr). Prereq: perm.

Intr **404** (s) **Special Topics** (cr arr). Prereq: perm.

Intr **411 Principles of Environmental Studies I** (3 cr). Historical aspects of environmental attitudes, perspectives, and action including the environmental awakening of the 1960s, environmental legislation of the 1970s, and environmental actions of the 1980s.

Intr **438 Pesticides in the Environment** (3 cr). See Soil 438.

Intr **490 Technology and Human Values** (2-3 cr). Ideological and value implications of technology for the future of humans and their environment.

Intr **497 Tutor Training** (1 cr). Training tutors for the Tutoring and Academic Assistance Center in the areas of learning strategies, study skills, problem solving, communication skills, group dynamics, and special population concerns; administrative recordkeeping and scheduling procedures necessary to the tutoring program. One and one-half hrs of lec a wk. Prereq: perm.

Intr **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Prereq: perm.

Intr **499** (s) **Directed Study** (cr arr). Prereq: perm.

Intr **500 Master's Research and Thesis** (cr arr).

Intr **501** (s) **Seminar** (cr arr). Prereq: perm.

Intr **502** (s) **Directed Study** (cr arr). Prereq: perm.

Intr **503** (s) **Workshop** (cr arr). Prereq: perm.

Intr **504** (s) **Special Topics** (cr arr). Prereq: perm.

Intr **511 Principles of Environmental Studies II** (3 cr). Documents required in environmental studies, mechanics of preparing, use, and meaning of each for environmental action and/or application. Prereq: Intr 411.

Intr **521 Permitting Philosophy and Application** (3 cr). History of permitting and licensing related to environmental policy act (both public and private), regulatory agencies, and permit applications for environmental programs. Prereq: Intr 511.

Intr **551 Environmental Toxicology** (3 cr). General principles in environmental toxicology; pollutants and transport-toxic impacts assessed.

Intr **589 Water Resources Seminar** (1 cr). Same as BAE 591, and CE, Fish, For, Geol, or GeoE 589. Reports by faculty members and grad students on current problems and projects; reports are organized to give maximum interchange of ideas between divisions.

Intr **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Interior Design

**Robert M. Baron, Chair, Dept. of Architecture (207 Art and Arch. South 83844-2451; phone 208/885-6781); Rula Z. Awwad-Rafferty, Acting Director, Interior Design (109 Art and Arch. North 83844-2451; phone 208/885-7373).**

Note: On registering for a studio course offered in this department, the student agrees that the department may retain work completed by the student. The department will make retained work available to the student for photographing.

ID **151 Interior Design** (3 cr). Introduction to residential and commercial design and its relationship to other design disciplines; emphasis areas include basic design theory, vocabulary, and visual awareness of the built environment. Attendance at outside events (such as lectures and symposiums) is required.

ID **152 Interior Design I** (3 cr). Study of the relationship of design theory to the interior environment; exploration, through a variety of media, of the elements and principles of design, with emphasis on spatial relationships and color theory. Two lec, four hrs of lab a wk, and assigned work; attendance at outside events; some class jury sessions outside of scheduled hours. Prereq: Art 121, ID 151, or perm; prereq or coreq: Arch 156 or perm.

ID **200** (s) **Seminar** (cr arr). Prereq: perm.

ID **203** (s) **Workshop** (cr arr). Prereq: perm.

ID **204** (s) **Special Topics** (cr arr). Prereq: perm.

ID **256 Basic Architectural Design** (3 cr). See Arch 256.

ID **281 History of the Interior I** (3 cr). Historical furnishings, furniture, interior design, and decorative arts of Europe from antiquity to beginning of the 20th century.

ID **282 History of the Interior II** (3 cr). Historical furnishings, furniture, interior design, and decorative arts of North America from 1620 to present and Europe from 1820 to present. Prereq: ID 281 or perm.

ID **299** (s) **Directed Study** (cr arr). Prereq: perm.

ID **332 Furniture Design and Construction** (3 cr). Fundamental course in furniture design and construction emphasizing the continuing development of three-dimensional design skills and attention to physical detail; aspects of structure, aesthetics, and ergonomics addressed by students who design and construct full-size furniture. One and one-half hrs of lec and 3 hrs of lab a wk. Prereq: ID 281, 282, 351, Arch 374, or perm.

ID **343 Universal Design** (2 cr). Introduction to and application of universal design and accessible design concepts, principles, products, standards, laws, regulations, and guidelines to the design and adaptation of the built environment. Attendance at outside events (such as lectures, simulations) is required. Prereq: ID 256 or Arch 256 or perm.

ID **351-352 Interior Design II-III** (4 cr). Intro to small scale commercial interior design theory and problem solving; emphasis on formation of interior spaces to correspond to function and flow patterns. Seven and one-half hrs of studio a wk; field trips reqd at student expense; some class jury sessions outside of scheduled hours. Prereq for ID 351: ID 152, 256 or perm. Prereq for ID 352: ID 351.

ID **368 Materials and Specifications** (3 cr). In-depth study of interior finishes, materials, and products; emphasis on performance characteristics, manufacturing methods, testing, codes, specifications, and professional liability. Field trips reqd at student expense. Prereq: FCS 123 or perm.

ID **400** (s) **Seminar** (cr arr). Prereq: perm.

ID **403** (s) **Workshop** (cr arr). Prereq: perm.

ID **404** (s) **Special Topics** (cr arr). Prereq: perm.

ID **441 Design and Human Performance** (2 cr). Introduction to the concepts of human factors and the built environment in relation to design; emphasis areas include ergonomics, performance, anthropometrics, and perception.

ID **451-452 Interior Design IV-V** (5 cr). Advanced problems in commercial interior design requiring synthesis of related course work into comprehensive design resolution; projects will seek to refine the design decision making process by requiring development beyond schematic phases, e.g., integration of building systems, lighting design, interdisciplinary investigation, and understanding of cultural/environmental context. Nine hrs of studio a wk and assigned work; field trips reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq for ID 451: ID 352, Arch 284 and 374. Prereq for ID 452: ID 451.

ID **478 Professional Practices for Interior Design** (3 cr). Interior designers' duties and responsibilities in professional practice; services, estimating, specifications, billing, and contracts.

ID **482 Introduction to Historic Preservation: Theories and Issues** (2 cr). See Arch 482.

ID **499** (s) **Directed Study** (cr arr). Prereq: perm.

# International Studies

**Rand C. Lewis, Director, Martin School of International Affairs (1 Cont. Educ. Bldg. 83844-3229; phone 208/885-6527).**

IS **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

IS **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

IS **204; 404** (s) **Special Topics** (cr arr). Prereq: perm.

IS **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

# Justice Studies

**Donald E. Tyler, Chair, Dept. of Sociology/Anthropology/Justice Studies (101 Phinney Hall 83844-1110; phone 208/885-6751).**

PREREQUISITE: Students are required to complete JS 101 before enrolling in any other course in this field; exceptions by permission of the instructor.

JS **101 Introduction to the Justice System** (3 cr). Survey of criminal justice organizations and procedures including history and function of law enforcement, probation, and parole agencies.

JS **WS150 Organizational Environment of Criminal Justice** (3 cr). WSU Crm J 150. Impact of organization structures and dynamics on processes of decision making and the performance of criminal justice agencies. Prereq: JS 101.

JS **200** (s) **Seminar** (cr arr). Prereq: perm.

JS **204** (s) **Special Topics** (cr arr). Prereq: perm.

JS **299** (s) **Directed Study** (cr arr). Prereq: perm.

JS **320 Police, Society, and Justice** (3 cr). History, development, and role of the police as a component of the justice system, with particular attention to the relationship of the police to community, society, and related institutions of social control; societal control of the police as well as the influences of social change and urban decay and disorder on methods of policing. Prereq: JS 101.

JS **WS330 Crime Control Policies** (3 cr). WSU Crm J 330. Analysis of ideologies, assumptions, and performance of crime control policies. Prereq: JS 101.

JS **332 Corrections** (3 cr). See Soc 332.

JS **333 White Collar Crime** (3 cr). The costs, causes, and control of crime by and against businesses and other organizations; the relationship between trust and white collar crime; the impact of the media in shaping perceptions of white collar crime.

JS **340 Crime, Justice, and the Media** (3 cr). Critical evaluation of the media portrayals of crime and the criminal justice system; analysis of how the media help to shape public understanding and public policy.

JS **400** (s) **Seminar** (cr arr). Prereq: perm.

JS **401 Justice Policy Issues** (3 cr). Focus on social, political, and economic factors that influence operation of the justice system and justice policy formation; critical issues such as the media and fear of crime to drugs and sentencing policy. Prereq: Sr standing and departmental major or minor or perm.

JS **404** (s) **Special Topics** (cr arr). Prereq: perm.

JS **WS-J405/WS-J505 Comparative Criminal Justice Systems** (3 cr). WSU Crm J 405/505. Credit not granted for both JS 405 and 505. Comparative study of criminal justice systems in selected foreign countries. Graduate-level counterpart has additional requirements. Prereq: JS 101.

JS **WS420 Law of Evidence and Criminal Procedure** (3 cr). WSU Crm J 420. Principal court decisions concerning standards of conduct and rights in the criminal process; evidentiary principles and privileges. Prereq: JS 325.

JS **422 Inequalities in the Justice System** (3 cr). Critical focus on the issues of race, class, and gender and their consequences for the operation of the justice system; the role of the justice system in the history and experience of various minorities, theories of minority crime, and issues of selective enforcement, sentencing disparity, and disproportionate incarceration; the role of gender considered through the examination of offenders, victims, and criminal justice professionals.

JS **WS424 Community Corrections** (3 cr). WSU Crm J 424.

JS **425 Criminal Law** (3 cr) (CJ 325). Sources and purpose of criminal law, meaning of criminal responsibility, and elements of crime; taught by College of Law faculty members. Prereq: Jr or Sr standing.

JS **430 Juvenile Justice** (3 cr). History, philosophy, and theory behind juvenile justice; explanation of the process and outcomes of cases, including in-depth coverage of juvenile corrections and the "continuum of care"; focus on current legislation and trends. Prereq: Soc 330.

JS **498** (s) **Internship in Criminal Justice** (1-6 cr, max 6). Directed internship in designated criminal justice agency or institution. Graded P/F. Prereq: perm.

JS **499** (s) **Directed Study** (cr arr). Prereq: perm.

JS **WS505 Comparative Criminal Justice Systems** (3 cr). See JS J405/J505.

JS **WS530 Criminal Justice: Process and Institutions** (3 cr). WSU Crm J 530. Processes of criminal justice in the context of the social, political, and economic environments.

JS **WS541 Seminar in Corrections** (3 cr). WSU Crm J 531. Current issues related to the control, management, and sanctioning of criminal offenders.

JS **WS550 Planned Change in Criminal Justice** (3 cr). WSU Crm J 550. Analysis of change efforts aimed at individual, organizations, and communities to reduce crime and improve the criminal justice system.

JS **WS570 The Police and Society** (3 cr). WSU Crm J 570. Community and selected social institutional factors as related to their influence on policy systems.

JS **WS592** (s) **Topics in Criminal Justice** (3 cr, max 6). WSU Crm J 592. Selected issues and topics in criminal justice.

# Landscape Architecture

**Stephen R. Drown, Chair, Dept. of Landscape Architecture (207 Art and Architecture 83844-2481; phone 208/885-7448; larch@uidaho.edu; http://www.uidaho.edu/larch).**

LArc **155 Introduction to Landscape Architecture I** (1 cr). Graded P/F. Introduction to the profession of landscape architecture; exposure to a range of professional issues through a series of lectures and presentations by faculty and visiting professionals.

LArc **156 Introduction to Landscape Architecture II** (1 cr). Attendance at a series of senior landscape architecture students' critiques and theses; preparation of a paper summarizing and comparing a select number of thesis topics.

LArc **200** (s) **Seminar** (cr arr). Prereq: perm.

LArc **203** (s) **Workshop** (cr arr). Prereq: perm.

LArc **204** (s) **Special Topics** (cr arr). Prereq: perm.

LArc **210 Computer Applications in Landscape Architecture** (2 cr). Exploration of hardware and software tools that are used by landscape architects throughout the design process; emphasis on CAD with an introduction to related landscape architecture specific tools. Open to landscape architecture majors only; non-majors by permission.

LArc **212 Irrigation Workshop** (2 cr). Irrigation as a design process; production of a number of drawings for projects of different scales. Accelerated three-week course.

LArc **247 Landscape Graphics** (3 cr). Development of techniques and skills in various media used in preparation of landscape architecture graphic presentations both in plan and perspective renderings. Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm.

LArc **259 Landscape Architecture I** (6 cr). Introduction to landscape architecture design; emphasis on theory, process, and design elements as they apply to the profession; includes readings, lectures, field trips, small-scale design projects (parks, plazas, courtyards). Nine studio hrs a wk; field trips required at student expense; guest lectures required outside of class meeting time. Prereq: Engl 101 and 102 with minimum grade of C; Art 121.

LArc **260 Landscape Architecture I** (6 cr). Integration and application of principles acquired in plant materials, grading, and drainage, and in LArc 259 to small scale planning and design projects. Selected field trips at student expense; attendance at outside events (lectures, symposiums, films). Prereq: LArc 259.

LArc **270 Landscape Construction I** (4 cr). Grading and drainage, earthwork planimeter computations, cut and fill, and road layout (horizontal/vertical curves). Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm; recommended preparation: Math 137 or 143.

LArc **288 Plant Materials I** (3 cr). Plant identification and selection; use of plant materials in relation to soils, topography, and climate; analysis of design principles in relation to plant compositions. Selected field trips at student expense.

LArc **289 Plant Materials II** (4 cr). Continuation of LArc 288 with emphasis on plant design projects as they relate to small or large scale public and private use areas. Two lec and 4 hrs of lab a wk; selected field trips at student expense. Prereq: LArc 288.

LArc **299** (s) **Directed Study** (cr arr). Prereq: perm.

LArc **ID&WS358 Professional Office Practice in Landscape Architecture** (2 cr). WSU L A 480. Office organization, fees, contracts, bonding, bidding specifications, insurance, and relationships with subcontractors.

LArc **359 Landscape Architecture II** (6 cr). Intermediate scale planning and design problems that emphasize the analysis, development, and presentation of solutions for urban, rural, and regional housing and recreation projects; introduction of senior critique; common project done with Department of Architecture. Selected field trips at student expense. Prereq: LArc 260, LArc 270 or perm.

LArc **360 Landscape Architecture II** (6 cr). Intermediate scale planning and design projects that emphasize sustainable development practices for the urban and rural environment with the application of visual analysis techniques and the use of indigenous plant materials for restoration and rehabilitation. Selected field trips at student expense. Prereq: LArc 359.

LArc **371 Landscape Construction II** (4 cr). Study of landscape construction including electrical lighting, stormwater management, construction detailing, layout and specifications, retaining walls, paving, and the use of sustainable materials. Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm.

LArc **383 Architectural Site Design** (3 cr). Fundamentals of site analysis, site design, and site planning for architects; principles and theories in technical, functional, social, legal, and perceptual issues related to the building site. Non-credit lab section for discussion and presentation of additional technical issues and site-related design projects; field trips and special sessions may be reqd.

LArc **385 GIS Primer** (3 cr). Intro to the theory and applications of geographic information systems (GIS), lab exercises on PC-based GIS package, and guest lecturers from industry and governmental agencies. Three hrs of lec-lab a wk.

LArc **ID&WS389 History of Landscape Architecture** (3 cr) (C). WSU L A 260. Overview of man and the landscape from the pre-Egyptian civilization through Ancient Greece and Rome, the Middle Ages, the Renaissance, the Oriental, and including contemporary styles and trends.

LArc **400** (s) **Seminar** (cr arr). Prereq: perm.

LArc **403** (s) **Workshop** (cr arr). Prereq: perm.

LArc **404** (s) **Special Topics** (cr arr). Prereq: perm.

LArc **459 Landscape Architecture III** (6 cr). Design development and the preparation of contract documents. Selected field trips at student expense; attendance at outside events (lectures, symposiums, films). Prereq: LArc 270, 359, 371.

LArc **460 Landscape Architecture III** (6 cr). Student critique of a professional landscape architectural project; completion of a comprehensive project(s) demonstrating mastery in areas of land planning and/or design, plant materials, construction, graphics, and computers. Prereq: LArc 459.

LArc **480 Issues for the Emerging Landscape** (3 cr). A capstone experience for students in landscape architecture; focus on the emerging issues of landscape architecture and associated disciplines.

LArc **490 Computer-Aided Regional Landscape Planning** (3 cr). Open to all majors. Study of techniques and methods for regional-scale landscape planning using ARC/INFO, a state-of-the-art geographic information system (GIS); application of ecological principles and land use analysis; emphasis on use of GIS as tool for landscape planning and management. Prereq: LArc 385 or Geog 385 or perm.

LArc **499** (s) **Directed Study** (cr arr). Prereq: perm.

LArc **500 Master's Research and Thesis** (cr arr). Prereq: graduate standing.

LArc **501** (s) **Seminar** (cr arr). Prereq: perm.

LArc **502** (s) **Directed Study** (cr arr). Prereq: perm.

LArc **503** (s) **Workshop** (cr arr). Prereq: perm.

LArc **504** (s) **Special Topics** (cr arr). Prereq: perm.

LArc **ID&WS559 The Northern Rocky Regional Landscapes** (4 cr). WSU L A 520. Biophysical characteristics of the Northern Rocky Mountain regional landscape. Prereq: graduate standing.

LArc **ID&WS560 Cultural Interpretation of Regional Landscapes** (4 cr). WSU L A 521. Cultural characteristics of the Northern Rocky Mountain regional landscape. Prereq: graduate standing.

LArc **ID&WS580 Philosophy and Theory in Landscape Architecture** (3 cr). WSU L A 510. Natural and cultural processes that characterize the interaction between humans and the landscape. Prereq: graduate standing.

LArc **ID&WS581 Methodology and Communication in Landscape Architecture** (3 cr). WSU L A 511. Methods of investigation and analysis of tools used for communication in landscape architecture research. Prereq: graduate standing.

LArc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: graduate standing and perm.

# Latin American Studies

**Dale T. Graden, Coordinator, Program in Latin American Studies (305-A Admin. Bldg. 83844-3175; phone 208/885-8956; graden@uidaho.edu).**

LAS **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

LAS **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

LAS **204; 404** (s) **Special Topics** (cr arr). Prereq: perm.

LAS **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

LAS **J410/J510 Human Rights in Latin America** (3 cr). Basic issues and concepts of international human rights law; history of the field, its underlying conflicts, emerging doctrines, and institutional frameworks specifically in the Americas; primary focus on Latin America, but the U.S. is also studied, especially U.S. foreign policy. Additional projects/assignments required for graduate credit.

LAS **510 Human Rights in Latin America** (3 cr). See LAS J410/J510.

# Law

**John A. Miller, Dean, College of Law (101 Law Bldg. 83844-2321; phone 208/885-4977).**

Registration by non-law students in any course offered by the College of Law requires permission in advance by the associate dean and the instructor of the course.

Law **ID511 Legal Process** (3 cr). WSU ES/RP 511. Not open to J.D. candidates for cr toward the degree; will ordinarily be confined to grad students and srs with superior academic records. Designed to acquaint non-law student with legal process in general and role of the judiciary in natural resource management in particular; provide non-law grad students with sufficient legal research, writing, and reasoning skills to enroll in regular law courses.

Law **805 Introduction to Law and Procedure** (3 cr). Introduction to the history, institutions, and philosophy of law; roles and responsibilities of lawyers, nature of legal claims, processes of legal analysis and reasoning, and principles of statutory interpretation; introduction to civil procedure in state and federal courts, including jurisdiction, trials, and preclusive effects of judgments.

Law **806 Procedure II** (3 cr). Continuation of the study of civil procedure from Law 805, including jurisdiction, venue, pleading, joinder of claims and parties, motions, discovery, trials, judgments, and appellate procedure.

Law **807-808 Property I-II** (3 cr each). Future interests, landlord and tenant, bailment, easements, covenants respecting the use and enjoyment of land, rights incident to land ownership and fixtures; adverse possession, gifts of personal property, conveyance of land, recording acts, land title assurance, and public control of land use.

Law **809-8l0 Torts I-II** (3 cr; 2 cr). The common law providing private redress for injuries primarily to person or property; examination of the three basic theories of tort liability: intent, negligence, and strict liability.

Law **812 Criminal Law** (3 cr). The sources and purposes of the criminal law; the meaning of criminal responsibility; the elements of crimes, and the administration of criminal justice.

Law **813-814 Contracts I-II** (3 cr each). Basic elements of private, consensual agreements enforced by law: formation, principles of bargain or reliance, methods to police the bargain, interpretation, performance/breach and remedies for breach, defenses to liability, and the rights and liabilities of third parties upon assignment and delegation.

Law **815 Legal Research and Writing** (3 cr). Year-long course. An introduction to traditional and computer-assisted legal research, objective and persuasive legal writing, and oral argument.

Law **901** (s) **Seminar** (cr arr). See the *Time Schedule* for specific topics.

Law **902 Constitutional Law I** (3 cr). An examination of the institution of judicial review and of the constitutional divisions of government power in the United States; the principles of separation of powers and federalism; and the constitutional protection of certain individual rights and liberties, particularly under the 14th amendment.

Law **904 Federal Courts** (3 cr). The constitutional structure and the practical role of the federal court system, with great emphasis on the working relationship between federal and state courts.

Law **905 Constitutional Law II** (3 cr). Continuation from Law 902 of the study of individual rights and liberties protected by the Constitution, with emphasis on civil rights legislation under Section 5 of the 14th Amendment; the "state action" doctrine; and freedom of speech and religion under the First Amendment.

Law **906 Seminar, Natural Resources Law and Policy** (3 cr). Selected topics in natural resources law and policy; topics vary with the interest of the instructor and students.

Law **907 Administrative Law** (3 cr). An examination of (1) the constitutional limits on administrative agencies, (2) the procedural requirements for agency decision making, and (3) judicial review of agency actions; the focus is on federal administrative law.

Law **908 Introduction to the Law of the Workplace** (4 cr). Survey course covering state common law exceptions to the employment at will doctrine, federal anti-discrimination statutes, federal statutory protection of collective activity, and other state and federal law governing the employment relationship; exploration of the processes of hiring, firing, and setting the terms and conditions of employment.

Law **910 Antitrust and Trade Regulation** (3 cr). Regulation of economic activity in a free enterprise system; antitrust laws examined in detail.

Law **911 Principles of Suretyship** (1 cr). General overview of principles of suretyship and guaranty including rights of the guarantor, guarantor's defenses, and unique applications of suretyship doctrine. Accelerated course.

Law **912 Civil Mediation** (2 cr). Dynamics, benefits, and skills needed in third-party intervention in the settlement of civil disputes; step-by-step introduction to mediation process; examination of mediation as a collaborative process of resolving conflicts and

assisting disputants to reach mutually satisfactory agreements. The final paper required in this course does not count toward the upper-division writing requirement. Graded P/F.

Law **913 Family Mediation** (2 cr). The process of divorce mediation from initial consultation through and beyond settlement; dispute resolution theory and the practical application of these theories. The final paper required in this course does not count toward the upper-division writing requirements. Graded P/F.

Law **914** (s) **Dispute Resolution** (1 cr, max 3). As part of the Northwest Institute for Dispute Resolution, the College offers one or two courses each year that examine discreet areas of dispute resolution.

Law **915 International Business Transactions** (3 cr). The study of issues and general rules related to the conduct of business in the international market with emphasis on international sale of goods, and import and export regulation. Prereq: Law 924 or perm. (Irregular)

Law **916 Public International Law** (2 cr). Survey of major areas of the law of nations and international organizations. (Irregular)

Law **917 Negotiation and Alternative Dispute Resolution** (2 cr). Simulation and seminar style instruction in negotiation techniques, mediation and arbitration, focusing on skill development and legal and ethical issues frequently faced by lawyers. Enrollment may be limited. (Irregular)

Law **919 Business Associations** (4 cr). Agency, partnerships, corporations, and other types of business organizations; limitations on powers and authority of partners, corporate officers, and directors.

Law **920 Securities Regulations** (3 cr). The law of corporate finance under the Securities Act of 1993 and the Securities Exchange Act of 1934.

Law **921 Basic Legal Accounting** (1 cr). Examination of basic accounting principles designed as background for the tax and business law courses for those students without accounting and business experience and intended to make the lawyer conversant with accountants. Accelerated course.

Law **922 Intellectual Property: Unfair Competition** (2 cr). Survey of the common law and statutory means by which a business can protect its names, the marks used to identify its products and services, and the ideas, information, and business relationships which it has developed; trade names, trademarks, trade secrets, and other aspects of the law regulating unfair competition.

Law **923 Negotiable Instruments, Bank Collections and Deposits, and Other Payment Systems** (3 cr). The study of paper based and other methods of payment under state and federal law with primary focus on the law of Negotiable Instruments under Article 3 of the Uniform Commercial Code, Bank Deposits and Collections, and Electronic Funds Transfers under Articles 4 and 4A of the UCC and Federal Reserve Board Regulations J and CC and related federal statutes. (Irregular)

Law **924 Sales** (3 cr). The study of the law relating to the sale of goods under Article 2 of the Uniform Commercial Code and related statutes and treaties, including introduction to the structure, purposes, and policies of the Uniform Commercial Code.

Law **925 Creditors' Rights and Secured Transactions** (3 cr). Comparison of unsecured and secured credit: analysis of the creation, perfection, priority, and enforcement of judicial and statutory liens and consensual Article 9 security interests; includes methods used to collect debts and judgments and the interplay between Article 9 and other law, such as the Federal Tax Lien Act and agricultural statutory liens.

Law **926 Bankruptcy** (3 cr). Federal bankruptcy law, the collective forum for resolving the rights of financially distressed debtors and their creditors, emphasizing basic principles applicable to all filings, liquidation, or rehabilitation of consumer debtors, and the pervasive effect of bankruptcy on everything from family law to business transactions and relationships.

Law **927 Business Entities Taxation** (3 cr). Examination of the federal taxation of pass-through entities and corporations; topics include formation, operations, allocation, distributions, and liquidation; the opportunity to study the concepts of business enterprise taxation as an integrated unit.

Law **930 Taxation** (3-4 cr). Income and deductions, accounting methods, transactions resulting in capital gain, deferral of tax, and choice of the taxable person; introduction to tax procedure and to income taxation of trusts, estates, and partnerships.

Law **931 Intellectual Property: Patents and Copyrights** (2 cr). A survey of the means by which inventors and authors obtain and enforce rights under the patent and copyrights statutes.

Law **932 Estate Planning** (3 cr). Inter vivos, testate, and intestate disposition of property with emphasis upon estate and gift tax impact and consideration of the law of future interests. Prereq or coreq: Law 941.

Law **935 Idaho Constitutional Law** (1 cr). Survey of the Idaho Constitution, with particular emphasis on those sections that caused controversy at Idaho's constitutional convention and remain important today.

Law **937 Natural Resources Law and Legal History** (3 cr). Historical examination of the role of law in shaping the evolution of resource use and management in the Pacific Northwest.

Law **941 Wills, Estates, and Trusts** (3 cr). Intestate succession, wills, and administration of estates in probate.

Law **942 Water Law** (3 cr). Acquisition and scope of water rights, water pollution control, and other environmental regulations, water distribution organizations, federal-state relations in water resource management.

Law **943 Real Estate Finance** (3 cr). Mortgages, deeds of trust, installment land contracts, construction financing, mechanics' liens, sale and leasebacks, and ground leases; brief coverage of condominiums, shopping center leases, and real estate listing agreements.

Law **944 Local Government and Land Use Law** (3 cr). Legislative, regulatory, tax, and borrowing authority of local government; contract and tort issues; special attention to land use regulation. A research paper may be required instead of an examination depending on size of class. Enrollment of second-year students may be limited by instructor.

Law **945 Community Property** (2 cr). Special problems that arise in connection with the community property system in the western states.

Law **ID947 Environmental Law** (3 cr). WSU ES/RP 548. Environmental planning and protection, regulation of air and water pollution, waste disposal, use of pesticides and other toxic chemicals, and remedies for environmental injury.

Law **ID948 Public Land Law** (3 cr). WSU ES/RP 549. History of public lands; special problems arising from ownership of land by governments.

Law **949 Indian Law** (3 cr). Study of judicial, statutory, and administrative materials concerning the historical development of Federal Indian Policy, treaties, the trust relationship, tribal sovereignty and self-government, civil and criminal jurisdiction, rights of individual Indians, state's rights, hunting and fishing rights, and the natural resources of tribes.

Law **950 Evidence** (3 cr). The law governing the presentation of proof in Idaho and federal courts.

Law **952 Remedies** (3 cr). Consideration of legal and equitable relief available to aggrieved parties in contractual or other relationships.

Law **953 Criminal Procedure** (3 cr). Search and seizure, arrest, interrogation, identification, right to counsel, and guilty pleas, with special attention to constitutional law and pre-trial procedures.

Law **954 Practice Court** (3 cr). Instruction in the skills fundamental to litigation and the techniques of persuasive witness examination and argument, combining classroom instruction and individually critiqued student exercises. Prereq: Law 950 and perm.

Law **955 Appellate Advocacy Program** (1 or 2 cr). A brief writing seminar including two briefs and the preliminary oral arguments of the McNichols Competition; the faculty advisor is the final arbiter of the number of credits awarded within the guidelines. Graded P/F; credits earned are not class hours.

Law **956 Appellate (Moot) Court/Mock Trial** (1 or 2 cr). Preparation of appellate briefs and argument of cases orally in regional or national competition; grading and evaluating briefs of students participating in second-year appellate advocacy program (with approval of the faculty advisor of the second-year appellate advocacy program); the faculty supervisor of each competition is the final arbiter of the number of credits awarded within the guidelines. Graded P/F; credits earned are not class hours. Only those students who will complete all the activities for their appellate moot court program (including attending the competition) by the end of fall semester may register for credits in the fall semester; all other students eligible for credits under this course register in the spring. Graded P/F; credits earned are not class hours.

Law **957 Mock Trial** (2 cr). Participation as an attorney on a mock trial team in regional or national competition; the faculty supervisor of each competition is the final arbiter of the credits awarded within the guidelines.

Law **958 Trial Advocacy** (2 cr). An intensive seven-day course offered the week before classes regularly begin in the fall. The course follows the national Institute of Trial Advocacy Training format of faculty demonstration, discussion, student performance, and critique, culminating in a mock jury trial on the last day of the training. Limited enrollment. Graded P/F. Prereq: Law 950 and perm.

Law **960 Conflict of Laws** (2 cr). A study of the principles for deciding which law applies to incidents and transactions crossing state lines and of the constitutional limitations on a state's rights to impose its own law in suits arising out of such incidents and transactions; enforcement of foreign judgments, the jurisdiction of courts, and the special jurisdictional problems in domestic relations cases.

Law **961 Jurisprudence** (2 cr). Consideration of the various views and philosophies of law as expressed in classical and contemporary writings; methods of legal analysis, the relationship between law and justice, between law and power, and between law and truth.

Law **962 Professional Responsibility** (2 cr). Status and function of the legal profession, responsibility to clients, the profession, the public, and the administration of justice.

Law **963 Family Law** (3 cr). Legal problems of the family, including marriage, annulment, adoption, and divorce.

Law **964 Children and the Law** (2 cr). Children and the Law examines the legal status of children, including topics such as the parent-child relationship, guardianship, representation of children, neglect, and adoption.

Law **971 Lawyering Process Seminar** (2 cr). Client representation skills, with an emphasis on pre-trial civil litigation; classroom and simulation instruction in interviewing, counseling and negotiating skills, pleading, discovery, and motion practice. Enrollment may be limited.

Law **972 Legal Externship** (1 cr). Legal work under the supervision of judges or government, non-profit, or private attorneys. Graded P/F; credits earned are not class hours. Prereq: approval of Director of Clinical Programs under standards approved by the faculty and available to students and supervising attorneys.

Law **973 Public Service Externship** (1-10 cr, max 10). Includes placements with judges, prosecutors, public defenders, other government attorneys, or attorneys for non-profit organizations. The following courts and offices have programs with standing approval of the director: The Supreme Court and Court of Appeals of Idaho, the United States Court of Appeals for the Ninth Circuit, the United States District Court for the District of Idaho, the Attorney General of Idaho, and the United States Attorney for the District of Idaho. Graded P/F; credits earned are not class hours. Prereq: approval of Director of Clinical Programs under standards approved by the faculty and available to students and supervising attorneys.

Law **974 Legal Aid Internship** (3 cr, max 6). In this two-semester course, students represent clients in civil and criminal cases. Field trips required when appropriate for serving clients. Prereq: qualification for limited license in Idaho, Law 950 and 971, and perm; coreq: Law 958; Law 953 recommended.

Law **975 Classroom Credit Public Service Externship** (5 cr). Students work in selected public service placements under the supervision of experienced judges and lawyers; attendance at a weekly seminar required (the seminar is available in Moscow, Boise, Coeur d'Alene, and Idaho Falls through interactive video). Graded P/F. Prereq: perm. (Summer)

Law **976 Semester in Practice** (1-12 cr, max 12). Open only to students in their last year of law school. Externing in the public sector under the supervision of a field placement supervisor and the College of Law director of external programs. Field placement and a weekly classroom component.

Law **982 Law Review** (1-4 cr, max 4). Graded P/F; credits earned are not class hours. The awarding of credit is subject to approval by the editor-in-chief and faculty advisor.

Law **983 Legal Research** (1-2 cr, max 4). Individual research on a significant legal problem and the writing of a paper thereon that must be approved by the faculty member under whose direction the work is done. Graded P/F; credits earned are not class hours. Prereq: perm.

Law **999** (s) **Study Abroad or Off Campus** (cr arr). Graded P/F. Prereq: perm of associate dean, College of Law.

# Library Science

**George F. Canney, Interim Director, Div. of Teaching, Learning, and Leadership (404B Educ. Bldg. 83844-3082; phone 208/885-6587).**

LibS **299** (s) **Directed Study** (cr arr). Prereq: perm.

LibS **400** (s) **Seminar** (cr arr). Prereq: perm.

LibS **404** (s) **Special Topics** (cr arr). Prereq: perm.

LibS **C419 Computer Applications in Libraries** (3 cr). Trends and developments in library automation; practical applications of microcomputers to library work and administration. Note: This is an academic course intended to teach fundamental terms and concepts. It is not a course on automating a library.

LibS **C-J420/C-J520 Classification and Cataloging** (4 cr). Organization of library materials, principles of cataloging, subject analysis, classification, bibliographic methods, Dewey decimal system. Research project and paper required for graduate credit. Prereq for LibS 520: perm.

LibS **C-J421/C-J521 Acquisitions and Collection Development in Libraries** (3 cr). Evaluation and selection of books and other materials for libraries; analysis of community library needs and interests. Research project and paper required for graduate credit. Prereq for LibS 521: perm.

LibS **C422 Use of the School Library** (2 cr). Methods of interesting students in the library and using it to best advantage.

LibS **C-J423/C-J523 Introduction to Reference Work** (3 cr). Reference books in school and public libraries; selecting reference collections. Research project and paper required for graduate credit. Prereq for LibS 523: perm.

LibS **C424 Information Sources on the Internet for Libraries** (3 cr). Principles of development and trends in Internet information resources that libraries access and use; emphasis on searching, evaluating, and providing to patrons needed reference material.

LibS **C-J425/C-J525 Organization and Management of Small Libraries** (4 cr). Organization and management of school libraries. Research project and paper required for graduate credit. Prereq for LibS 525: perm.

LibS **C427 Library and Media Center Practicum** (1-3 cr). Experience in a library or other information center under professional supervision. Ninety hours of supervised experience per credit. Prereq: 6 cr in library and information science and perm.

LibS **C428 Children's Literature for School Librarians** (3 cr). This course will develop students' basic knowledge and understanding of the field of children's literature, particularly as it pertains to librarians, with a focus on children ages 2-12. This course will emphasize skills, tools, and insights necessary for effective professional librarianship in the area of services to children.

LibS **C429 Adolescent Literature for School Librarians** (3 cr). This course will develop students' knowledge of adolescent literature as it pertains to librarians, with a focus on youth grades 6-12. It emphasizes the skills and discernment necessary by the librarian to effectively serve adolescents. Evaluation tools for selecting literature and electronic resources will be covered, and issues relating to materials selection and promotion for the secondary school library will be explored.

LibS **499** (s) **Directed Study** (cr arr). Prereq: perm.

LibS **C520 Classification and Cataloging** (4 cr). See LibS C-J420/C-J520.

LibS **C521 Acquisitions and Collection Development in Libraries** (3 cr). See LibS C-J421/C-J521.

LibS **C523 Introduction to Reference Work** (3 cr). See LibS C-J423/C-J523.

LibS **C525 Organization and Management of Small Libraries** (4 cr). See LibS C-J425/C-J525.

# Martin Institute

**Rand C. Lewis, Director, Martin School of International Affairs (1 Cont. Educ. Bldg. 83844-3229; phone 208/885-6527).**

Mrtn **486 Public Involvement in Natural Resource Management** (3 cr). See RRT 486.

Mrtn **490 The Causes of War** (3 cr). Scientific analysis of the causes of the major wars since World War I. Cr not granted for both Mrtn 490 and PolS 449.

Mrtn **496 International Organizations and International Law** (3 cr). See PolS 440.

# Materials Science and Engineering

**Francis H. (Sam) Froes, Dept. Head (203 McClure Hall. 83844-3024; phone 208/885-6376).**

MSE **101 Introduction to Metallurgy and Materials Science** (1 cr). See MET 101.

MSE **130 Engineering Analysis and Computations** (3 cr). See Min 130.

MSE **201 Elements of Materials Science** (3 cr). See Met 201.

MSE **202 Microstructural Evaluation** (2 cr). See Met 202.

MSE **308 Thermodynamics of Materials** (3 cr). See Met 308.

MSE **309 Transport Phenomena for Design** (4 cr). See Met 309.

MSE **313 Physical Metallurgy** (4 cr). See Met 313.

MSE **ID341 Particulate Materials Processing** (4 cr). See Met ID341.

MSE **344 Hydroprocessing of Materials** (4 cr). See Met 344.

MSE **400** (s) **Seminar** (cr arr). Prereq: perm.

MSE **404** (s) **Special Topics** (cr arr). Prereq: perm.

MSE **ID407 Materials Fabrication** (3 cr). See Met ID407.

MSE **J410/J510 Plasma Processing of Materials** (3 cr). See Met J410/J510.

MSE **412 Mechanical Behavior of Materials** (3 cr). See Met 412.

MSE **J413/J513 Phase Equilibria in Materials** (3 cr). See Met J413/J513.

MSE **414 Process Design** (3 cr). See Met 414.

MSE **ID415 Materials Selection and Design** (3 cr). See Met ID415.

MSE **J416/J516 Magnetic Materials** (3 cr). See Met J416/J516.

MSE **417 Instrumental Analysis** (3 cr). See Met 417.

MSE **ID-J421/J521 Light Metals** (3 cr). See Met ID-J421/J521.

MSE **J423/J523 Corrosion** (3 cr). See Met J423/J523.

MSE **J425/J525 Electronic Materials** (3 cr). See Met J425/J525.

MSE **J427/J527 Ceramics Materials** (3 cr). See Met J427/J527.

MSE **ID-J429/J529 Melting, Casting, and Powder Metallurgy** (3 cr). See Met ID-J429/J529.

MSE **430 Electrical, Optical, and Magnetic Properties of Materials** (3 cr). Materials for circuits, Magnetism and magnetic materials, Ferroelectric and piezoelectric materials, Semiconductors, Optical properties of semiconductor for Optoelectronics. Prereq: Sr standing or perm.

MSE **432 Fundamentals of Thin Film Fabrication** (3 cr). Physical deposition, chemical deposition, post deposition process, film characterization, and film properties. Prereq: Sr standing or perm.

MSE **434 Fundamentals of Polymeric Materials** (3 cr). Basic information on polymeric materials, both fundamentals and uses. Prereq: Chem 111 and 112.

MSE **442 Pyroprocessing of Materials** (4 cr). See Met 442.

MSE **450 Digital Data Storage Systems** (3 cr). See EE 450.

MSE **463 Mechanics of Materials Processing** (3 cr). See ME ID463.

MSE **480 Transmission Electron Microscopy of Materials** (3 cr). See Met 480.

MSE **486 Solid-State Electronics** (3 cr). See EE 486.

MSE **498** (s) **Internship** (cr arr). Prereq: perm.

MSE **499** (s) **Directed Study** (cr arr). Prereq: perm.

MSE **500 Master's Research and Thesis** (cr arr).

MSE **501** (s) **Seminar** (cr arr). Prereq: perm.

MSE **502** (s) **Directed Study** (cr arr). Prereq: perm.

MSE **504** (s) **Special Topics** (cr arr). Prereq: perm.

MSE **510 Plasma Processing of Materials** (3 cr). See Met J410/J510.

MSE **513 Phase Equilibria in Materials** (3 cr). See Met J413/J513.

MSE **516 Magnetic Materials** (3 cr). See Met J416/J516.

MSE **517 Kinetics of Metallurgical Reactions** (3 cr). See Met 517.

MSE **518 Advanced Mechanical Metallurgy** (3 cr). See Met 518.

MSE **520 Advanced Rate Phenomena in Metallurgical Engineering** (3 cr). See Met 505.

MSE **521 Light Metals** (3 cr). See Met ID-J421/J521.

MSE **523 Corrosion** (3 cr). See Met J423/J523.

MSE **525 Electronic Materials** (3 cr). See Met J425/J525.

MSE **527 Ceramic Materials** (3 cr). See Met J427/J527.

MSE **528 Advanced Engineering Ceramics** (3 cr). See Met 528.

MSE **529 Melting, Casting, and Powder Metallurgy** (3 cr). See Met ID-J429/J529.

MSE **533 Advanced X-ray Diffraction** (3 cr). See Met 533.

MSE **R534 Radiation Effects in Materials** (3 cr). See Met R534.

MSE **535 Failure of Structural Materials** (3 cr). See Met R535.

MSE **536 Mechanics of Composite Materials** (3 cr). See ME ID&WS534

MSE **539 Advanced Mechanics of Materials** (3 cr). See ME 539.

MSE **563 Solid State Physics** (3 cr). See Phys ID&WS563.

MSE **598** (s) **Internship** (cr arr). Prereq: perm.

MSE **599** (s) **Research** (cr arr). Prereq: perm.

MSE **600 Doctoral Research and Dissertation** (cr arr).

# Mathematics

**Monte Boisen, Chair, Dept. of Mathematics (300 Carol Ryrie Brink Hall 83844-1103; phone 208/885-6742).**

**Vertically-related courses in this subject field are:** Math 170-175-275-471-472.

**Credit Limitations:** Math 108 carries no credit after Math 137 or 143; Math 137 carries no credit after 143; Math 143 carries no credit after 160 or 170; Math 161 carries no credit after 175; Math 170 carries 2 credits after 160; Math 160 carries no credit after 170.

Math **108 Intermediate Algebra** (3 cr) (C) (Math 107). Carries no credit after Math 137 or 143. Review of algebra including factoring, rational expressions, exponents, radicals, quadratic equations, equations of lines. Taught using the Polya Math Center, a studio environment featuring group study, one-to-one interaction with instructors, computer-mediated modules, and lectures. Does not satisfy core requirement.

Math **123 The Spirit of Mathematics** (3 cr). *May be used as core credit in J-3-c.* For students who are curious about what mathematics is and what mathematicians do but who do not plan to use mathematics as an essential tool in their careers; discussion of some aspects of mathematics through study of problems of "applied" and of "pure" type, taken from areas such as number theory, geometry, topology, probability, and combinatorics; discussion of the historical development.

Math **130 Finite Mathematics** (3 cr) (C). *May be used as core credit in J-3-c.* Systems of linear equations and inequalities, matrices, linear programming, and probability. Prereq: 1 yr high school algebra, 1 yr plane geometry, and sufficient score on SAT, ACT, or COMPASS Math Test.

Math **137 Algebra with Applications** (3 cr). *May be used as core credit in J-3-c.* Carries no credit after Math 143. Algebraic, exponential, logarithmic functions, systems of equations, applications. Prereq: 1-1/2 years high school algebra, 1 yr high school plane geometry, and sufficient score on SAT, ACT, or COMPASS Math Test; or Math 108 with grade of C or better. To remain enrolled in the course a student must pass an Algebra Skills Test given within the first three weeks of the course. It is recommended that Math 137 be taken within two years of passing Math 108 or its equivalent.

Math **143 Pre-calculus Algebra and Analytic Geometry** (3 cr) (C). *May be used as core credit in J-3-c.* Carries no credit after Math 160 or 170; carries 2 credits after Math 137. Algebraic, exponential, logarithmic functions; graphs of conics; zeros of polynomials; systems of equations, induction. Taught using the Polya Math Center, a studio environment featuring group study, one-to-one interaction with instructors, computer-mediated modules, and lectures. Prereq: 1-1/2 yrs high school algebra, 1 yr high school plane geometry, and sufficiently high score on SAT, ACT, or COMPASS Math Test; or Math 108 with grade of C or better. To remain enrolled in the course a student must pass an Algebra Skills Test given within the first three weeks of the course. It is recommended that Math 143 be taken within two years of passing Math 108 or its equivalent.

Math **144 Analytic Trigonometry** (1 cr) (C). Not open for cr to students who have previous high school or college cr in trigonometry. Trigonometric functions, inverse functions, applications. Taught using the Polya Math Center, a studio environment featuring group study, one-to-one interaction with instructors, computer-mediated modules, and lectures. Prereq: 2 yrs high school algebra (or Math 143) and 1 yr plane geometry, and perm of dept. Concurrent enrollment in Math 143 or 170 permitted.

Math **160 Survey of Calculus** (4 cr) (C). *May be used as core credit in J-3-c.* Carries no credit after Math 170. Functions, graphing, derivative, integral, exponential and logarithmic functions, functions of several variables. Prereq: One yr of high school geometry and one of the following: (1) 1-1/2 yrs high school algebra and sufficiently high score on SAT, ACT, or COMPASS Math Test, or (2) Math 137, or (3) Math 143, or (4) a grade of A or B in Math 108.

Math **161 Survey of Calculus II** (3 cr). Carries no credit after Math 175. Functions of several variables, integration, probability, and infinite series; applications to business, social sciences, and the life sciences. Prereq: Math 160.

Math **170 Analytic Geometry and Calculus I** (4 cr) (C). *May be used as core credit in J-3-c.* Carries 2 credits after Math 160. Functions, limits, continuity, differentiation, integration, applications, differentiation and integration of transcendental functions. Prereq: Math 143, or 2 yrs high school algebra and 1 yr plane geometry and 1/2 yr analytic trigonometry and sufficiently high score on SAT, ACT, or COMPASS Math Test.

Math **175 Analytic Geometry and Calculus II** (4 cr). Differentiation and integration of transcendental functions, integration techniques, general mean value theorem, numerical techniques, and series. Prereq: Math 170.

Math **176 Discrete Mathematics** (3 cr). Induction, set theory, graph theory, number systems, Boolean algebra, and elementary counting. Prereq: two yrs high school algebra and sufficiently high score on SAT, ACT, or COMPASS Math Test; or Math 143.

Math **202** (s) **Seminar** (cr arr). Prereq: perm.

Math **204** (s) **Special Topics** (cr arr). Prereq: perm.

Math **215 Seminar in Topology of the Plane** (3 cr). Carries no credit after Math 411 or 471. Primary goal is to teach students to prove theorems; open and closed sets, connectedness, compactness, continuity, etc. Class size limited to 15. Prereq: Math 170, 175, and perm.

Math **235 Mathematics for Elementary Teachers I** (3 cr) (C). Mathematical development of arithmetic and problem solving as those subjects are currently taught in elementary schools. Three lec and one 1-hr lab a wk. Prereq: passing Arithmetic Skills Test, 1 year of plane geometry, and Math 143 or 137 (or sufficient score on SAT, ACT, or COMPASS Math Test).

Math **236 Mathematics for Elementary Teachers II** (3 cr) (C). Mathematical development of informal geometry, problem solving, and probability and statistics as those subjects are currently taught in elementary schools. Three lec and one 1-hr lab a wk. Prereq: Math 235.

Math **255 Applied Actuarial Science I** (0 cr). Review of calculus and linear algebra in preparation for Actuarial Exam 1. Prereq: Math 275, 330.

Math **275 Analytic Geometry and Calculus III** (3 cr). Vectors, functions of several variables, and multiple integration. Prereq: Math 175.

Math **286 Theory of Numbers** (3 cr). Elementary number theory, including divisibility properties, congruences, and Diophantine equations. Prereq: Math 143 or perm.

Math **299** (s) **Directed Study** (cr arr). Prereq: perm.

Math **310 Ordinary Differential Equations** (3 cr). Classification, initial and boundary value problems of one variable, exact equations, methods of solving higher-order linear equations, second-order equations with constant coefficient, series solutions, systems of linear equations, Laplace transforms, and existence theorems. Prereq: Math 175 (275 recommended).

Math **H315 Topics in Pure Mathematics** (3 cr). A topic selected each yr that develops skill and appreciation for theoretical nature of mathematics. Prereq: Math 160 or 170 and perm of director of University Honors Program.

Math **326 Linear Programming** (3 cr). Geometric solutions, simplex method, duality and revised simplex method, sensitivity, integer programming, applications. Prereq: Math 160 or 170.

Math **330 Linear Algebra** (3 cr). Linear equations, matrices, linear transformations, eigenvalues, diagonalization; applications. Prereq: Math 160 or 170.

Math **346 Applied Combinatorics** (3 cr). Elementary counting methods, generating functions, recurrence relations, Polya's enumeration, enumeration of graphs, trees, searching, combinatorial algorithms. Prereq: Math 175; recommended prereq: Math 176 or 376 or 475.

Math **371 Mathematical Physics** (3 cr). See Phys 371.

Math **376 Discrete Mathematics II** (3 cr). Selected topics from discrete mathematics such as graph theory, modeling, and optimization. Prereq: Math 176 or perm.

Math **390 Geometry** (3 cr). Topics chosen from finite geometries, Euclidean and non-Euclidean geometries, convexity, transformational geometry, and intuitive geometry. Prereq: high school geometry and Math 215, or perm.

Math **400** (s) **Seminar** (cr arr). Prereq: perm.

Math **404** (s) **Special Topics** (cr arr). Prereq: perm.

Math **411 Elementary Topology** (3 cr). Metric spaces; topological spaces; compactness; connectedness, continuity. Prereq: Math 275 or perm. (Alt/yrs)

Math **420 Complex Variables** (3 cr). Complex numbers, elementary functions, derivatives, the residue theorem, conformal mappings, contour integration, infinite series, applications. Prereq: Math 275. (Alt/yrs)

Math **426 Discrete Optimization** (3 cr). Optimization on graphs, networks and flows, and related topics. Prereq: Math 175. (Alt/yrs)

Math **432 Numerical Linear Algebra** (3 cr). Analysis of efficiency and accuracy of large linear algebra problems; special emphasis on solving linear equations and finding eigenvalues. Prereq: Math 275, 330, and knowledge of a computer language. (Alt/yrs)

Math **433 Numerical Analysis** (3 cr). Analysis of numerical methods useful in solving applied problems; solution of nonlinear equations, interpolation, numerical differentiation and integration, numerical solution of differential equations. Prereq: Math 275, 330, and knowledge of a computer language.

Math **435** (s) **Topics in Applied Mathematics** (cr arr). Topics chosen from fields of current interest in applied mathematics; inquire at the Department of Mathematics for a description of topics for future semesters. Prereq: perm.

Math **437 Mathematical Biology** (3 cr). Modeling biological phenomena, mostly through differential equations; mathematical topics include stability analysis and limit cycles for nonlinear ODE's, spatial diffusion and traveling waves for PDE's; biological topics include models of predator-prey systems, infectious diseases, and competition. Prereq: Math 310 or perm.

Math **ID&WS451 Probability Theory** (3 cr). Same as Stat 451. WSU Math 443. Random variables, expectation, special distributions (normal, binomial, exponential, etc.), moment generating functions, law of large numbers, central limit theorem. Prereq: Math 275.

Math **ID&WS452 Mathematical Statistics** (3 cr). Same as Stat 452. WSU Math and Stat 456. Estimation of parameters, confidence intervals, hypothesis testing, likelihood ratio test, sufficient statistics. Prereq: Math 451.

Math **ID&WS-J453/ID&WS-J538 Stochastic Models** (3 cr). Same as Stat J453/J544. WSU Stat 544. Markov chains, stochastic processes, and other stochastic models; applications. Additional projects/assignments reqd for grad cr. Prereq: Math 451 or perm. (Alt/yrs)

Math **455 Applied Actuarial Science II** (0 cr). Review of probability theory in preparation for Actuarial Exam 1. Prereq: Math 451.

Math **461-462 Abstract Algebra** (3 cr). Groups, rings, and fields. Recommended prereq for Math 461: at least one of the following: Math 215, 286, 330, 390.

Math **471-472 Advanced Calculus** (3 cr). Topology of Euclidean n-space, limit and continuity, differentiation, integration. Prereq: Math 275 and 215, or perm.

Math **475 Analysis of Algorithms** (3 cr). Same as CS 495. Measures of efficiency; standard methods and examples in the design and analysis of algorithms. Prereq: CS 213 and Math 175.

Math **480 Partial Differential Equations** (3 cr). Intro to Fourier analysis, application to solution of partial differential equations; classical partial differential equations of engineering and physics. Prereq: Math 310. (Alt/yrs)

Math **485 Theory of Computation** (3 cr). Same as CS 490. Mathematical models of computation, including finite automata and Turing machines. Prereq: perm.

Math **490 Introduction to Set Theory** (3 cr). Set operations, functions, binary operations and relations, cardinal and ordinal numbers, axiom of choice, partially ordered sets, and Zorn's lemma. Prereq: Math 275. (Alt/yrs)

Math **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Math **499** (s) **Directed Study** (cr arr). Prereq: perm.

Math 500 Master's Research and Thesis (cr arr).

Math **501** (s) **Seminar** (cr arr). Prereq: perm.

Math **502** (s) **Directed Study** (cr arr). Prereq: perm.

Math **504** (s) **Special Topics** (cr arr). Prereq: perm.

Math **505** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

Math **510 Seminar on College Teaching of Mathematics** (1 cr). Development of skills in the teaching of college mathematics; includes structure of class time, test construction, and various methods of teaching mathematics; supervision of teaching assistants in their beginning teaching assignments. Graded P/F. Prereq: perm.

Math **513 Problem Solving Through History** (3 cr). Historical study of approaches to solving problems in geometry, number theory, and set theory. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **514 Foundations of Calculus** (3 cr). Real numbers, sequences, topology of the real numbers, continuous functions, differentiation, and integration; emphasis on developing the conceptual understanding needed to teach calculus in secondary school. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **515 Problems in Geometry** (3 cr). Exploration of topics in geometry with emphasis on developing geometric reasoning and problem solving. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **516 Groups and Symmetry** (3 cr). Exploration of groups, symmetry, and permutations. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **519** (s) **Special Topics** (cr arr). Special topics of interest to mathematics teachers. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs. Prereq: perm.

Math **ID&WS521-ID&WS522 Topology** (3 cr). WSU Math 525-526. Basic concepts of point set and algebraic topology. (Alt/yrs)

Math **ID523-ID524 Algebraic Topology** (3 cr). WSU Math 527-528. Basic homotopy theory, covering spaces, homology theory, and applications. (Alt/yrs)

Math **525** (s) **Seminar in Topology** (1-3 cr, max arr). Current literature.

Math **526** (s) **Topics in Topology** (1-3 cr, max 12).

Math **528 Differentiable Manifolds** (3 cr). Fundamentals of smooth manifolds, tangent spaces, vector fields, Lie groups, integration on manifolds, and applications. Prereq: Math 411 or 521, and 471.

Math **ID&WS531 Complex Variables** (3 cr). WSU Math 503. Theory of functions of a complex variable. (Alt/yrs)

Math **535 Real Variables** (3 cr). Measure and integration theory for functions of one or several variables. (Alt/yrs)

Math **536 Probability Theory** (3 cr). Random variables, characteristic functions, convergence theorems, central limit theorem, conditional probability, and stochastic processes as developed from a measure theoretic basis. Prereq: Math 535 or perm. (Alt/yrs)

Math **ID&WS538 Stochastic Models** (3 cr). See Math J453/J538.

Math **ID&WS539 Theory of Ordinary Differential Equations** (3 cr). WSU Math 512. Existence, uniqueness, and stability of solutions of first-order systems; other topics. (Alt/yrs)

Math **540 Partial Differential Equations** (3 cr). Existence and uniqueness theorems for the wave, heat, and Laplace's equations of physics; additional topics such as nonlinear models in mathematical biology, perturbation methods, etc. Prereq: Math 539 or perm.

Math **ID&WS541** (s) **Seminar in Analysis** (1-3 cr, max arr). WSU Math 581. Current literature.

Math **WS543 Approximation Theory** (3 cr). WSU Math 543.

Math **WS544 Advanced Matrix Computations** (3 cr). WSU Math 544.

Math **WS547 Numerical Analysis of Elliptic PDE's** (3 cr). WSU Math 546.

Math **ID550 Linear Algebra** (3 cr). WSU Math 554. Vector spaces, direct sums, quotient spaces, similarity, Jordan forms, inner products, eigenvalues, eigenvectors, spectral theory. (Alt/yrs)

Math **ID551 Ring Theory** (3 cr). WSU Math 551. Ideals, quotient rings, modules, radicals, semisimple Artinian rings, Noetherian rings. (Alt/yrs)

Math **ID552 Galois Theory** (3 cr). WSU Math 552. Field extensions, automorphisms, normality, splitting fields, radical extensions, finite fields, separability. A knowledge of group theory is presumed. (Alt/yrs)

Math **553 Group Theory** (3 cr). Permutation groups, isomorphisms, direct products, Sylow theory, normal series, abelian groups. (Alt/yrs)

Math **WS554 Advanced Topics in Geometry** (3 cr). WSU Math 550. (Alt/yrs)

Math **ID&WS561** (s) **Seminar in Algebra** (1-3 cr, max arr). WSU Math 582. Current literature.

Math **563 Mathematical Methods for Population Genetics and Evolution** (3 cr). Same as Biol 563. Investigation of aspects of evolutionary biology with an emphasis on stochastic models and statistical methods; topics include: diffusion methods in molecular evolution, gene genealogies and the coalescent, inferring coalescent times from DNA sequences, population subdivision and F statistics, likelihood methods for phylogenic inference, statistical hypothesis testing, the parametric bootstrap. Prereq: Math 160 or 170 and Stat 251 or 301.

Math **ID&WS571-ID&WS572 Functional Analysis** (3 cr). WSU Math 504-506. Linear topological spaces and linear operators. Prereq: Math 536. (Alt/yrs)

Math **575-576 Graph Theory** (3 cr). Basic concepts and theorems; topics include trees and connectivity, eulerian and hamiltonian graphs, graph colorings, matchings, graph decomposition, and extremal graph theory. (Alt/yrs)

Math **578 Combinatorial Optimization** (3 cr). Optimization problems on graphs, network flow problems, complexity analysis of algorithmic solutions, and related topics. (Alt/yrs)

Math **581** (s) **Seminar in Combinatorics** (1-3 cr, max arr).

Math **WS583 Seminar in Applied Mathematics** (3 cr, max arr). WSU Math 583.

Math **585-586** (s) **Recent Developments in Mathematics** (3 cr, max arr). For students with extensive background in specific areas of mathematics.

Math **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Math **600** **Doctoral Research and Dissertation** (cr arr).

# Mechanical Engineering

**Ralph S. Budwig, Chair, Dept. of Mechanical Engineering (324I Engineering/Physics Bldg. 83844-0902; phone 208/885-6579).**

Note: Pre-advising is required for all mechanical engineering courses; consult the department office to be assigned to an advisor.

ME **103 Introduction to Engineering** (2 cr). Intro to engineering career opportunities through analysis of engineering design problems; includes computer graphics, programming languages, economics, and statistics. (Summer short course for JEMS Program)

ME **122 Mechanical Engineering Survival Skills** (1 cr). Introduction and review of learning and other skills needed to be successful in mechanical engineering classes. One 2-hr lab a wk. Coreq: ME 123 and Math 143.

ME **123 Introduction to Mechanical Design** (3 cr). Introduction to engineering design process and analysis techniques including problem solving skills, development of software learning skills, graphical analysis, data analysis, economic decision making, documentation skills, and use of structured programming concepts in designing personal applications. Three lec and one open 2-hr lab a wk. Coreq: Math 170 or ME 122.

ME **223 Mechanical Design Analysis** (3 cr). Use of a design and problem solving methodology in the creation of application programs; matrix methods; numerical integration; solution of differential equations; oral/written communication. Three lec and one 2-hr open lab a wk. Prereq: Engr 105 and ME 123. Coreq: Math 175.

ME **261 Engineering Materials** (3 cr). Same as Met 201. Fundamental factors in influencing properties and selection of materials. Prereq: Chem 111.

ME **262 Sophomore Laboratory** (3 cr). Materials foundation of mechanics; testing of structures subject to axial, torsion, and bending loads as well as thin-walled pressure vessels; use of computers for data reduction and analysis; development of engineering record keeping skills. One lec and 2 hrs of lab a wk. Prereq: Engr 210. Coreq: ME 223.

ME **301 Advanced Engineering Graphics** (3 cr). Two and three dimensional graphics applications; use of solid modeling software in engineering design; integration of computer-aided design, analysis, and manufacturing. Prereq: ME 223 and Engr 105.

ME **304 Materials Selection and Processing for Mechanical Design** (3 cr). Selection of materials for mechanical design based on material properties, processing, and service conditions. Prereq: ME 261 or Met 201, and ME 262. Coreq: Engr 350.

ME **307-308 Group Mentoring I-II** (1 cr). Mentoring of student groups in engineering classes where a process education environment is used; students taking this course will improve their engineering skill in the area they are mentoring as well as improving their team, communication, and leadership skills. Students must attend all classes or labs where group activities in the process education environment are done (a minimum of 2 mentoring sessions per week). Prereq: perm.

ME **313 Dynamic Modeling of Engineering Systems** (3 cr). Application of basic engineering principles to model and analyze the dynamic response of engineering systems; problem solutions will utilize transfer function methods, state variable techniques, and simulation software. Prereq: ME 223, Engr 220, Engr 240, and Math 310.

ME **323 Design Seminar** (3 cr). Structuring a solution approach for open-ended problems. Elements of modern design theory. Multidisciplinary teamwork. Information collection and self-directed learning. Professional issues in engineering practice such as economics, ethics, environmental topics, safety, and patents. Approximately 25% of class time is devoted to project work. Prereq: ME 223.

ME **ID&WS324 Dynamic Analysis in Machine Design** (3 cr). WSU M E 312. Kinematic, static, and dynamic principles and application to analysis and synthesis of machines with emphasis on computer-aided design (CAD) techniques. Two lec and one 3-hr lab a wk; one 1-day field trip. Prereq: Math 310, Engr 220, and ME 223.

ME **330 Experimental Methods for Engineers** (3 cr). Measurement systems and their application to engineering problems; topics include generalized performance of measurement systems, measuring and control devices, data acquisition and analysis, and report writing. Two lec and one 2-hr lab a wk. Prereq: ME 223 and 262. Coreq: Engr 240, 320, 335, and 350.

ME **341 Intermediate Mechanics of Materials** (3 cr). Mechanics of materials approach to three dimensional stress and strain, plates, curved beams, pressure vessels, non-circular torsion and unsymmetrical ending; introduction to elementary energy methods and advanced strength theories. Prereq: Engr 350.

ME **ID&WS345 Heat Transfer** (3 cr). WSU M E 404. Transmission by conduction of heat in steady and unsteady states, by free and forced convection, and by radiation; combined effects of conduction, convection, and radiation. Prereq: ME 223, Engr 320, and Math 310.

ME **398-399** (s) **Engineering Cooperative Internship I-II** (cr arr). Supervised internship in professional engineering settings, integrating academic study with work experience; requires written report to be evaluated by a designated faculty member; details of coop to be arranged with ME Department before start of coop; cannot be counted as a technical elective. Graded P/F. Prereq: perm.

ME **404** (s) **Special Topics** (cr arr). Prereq: perm.

ME **407-408 Group Mentoring III-IV** (1 cr). Mentoring of student groups in engineering classes where a process education environment is used; students taking this course will improve their engineering skill in the area they are mentoring as well as improving their team, communication, and leadership skills. Student must attend all classes or labs where group activities in the process education environment are done (a minimum of 2 mentoring sessions per week). Prereq: perm.

ME **409 Human Factors in Engineering Design** (3 cr). Application of psychological principles to engineering and design; psychological models and principles from areas of perception, cognition, and information processing; the design process; display and control design; work station layout and system integration; environmental factors; safety; mental workload; human-computer interaction; and current research topics. Prereq: Sr standing in an engineering discipline or perm.

ME **410 Production Engineering** (3 cr). Planning, analysis, and control of production systems; decision models; techniques for productivity enhancement; quality control. Prereq: Sr standing in an engineering discipline or perm.

ME **412 Gas Dynamics** (3 cr). Compressible flow in ducts and nozzles, shock waves and expansion waves, and adiabatic two-dimensional compressible flow. Prereq: Math 310, Engr 320, and Engr 335.

ME **J413/J513 Engineering Acoustics** (3 cr). ME 513 same as EE 579. Fundamentals of acoustics including wave theory; transmission through layers, generation and reception; low frequency models; application to sound measurement, transducers, loudspeaker cabinet design, and nondestructive testing; acoustic design project reqd. Additional projects/assignments reqd for grad cr. Prereq: ME 313, Engr 320, and Engr 335.

ME **J414/J514 HVAC Systems** (3 cr). Application of thermodynamics, heat transfer, and fluid flow to understanding the psychrometric performance of systems and equipment; evaluating the performance characteristics, advantages, and disadvantages of the various types of HVAC systems including large tonnage refrigeration/chiller equipment, cooling coils, cooling towers, ducts, fans, and heat pump systems; economics of system and equipment selection. Prereq: ME 345, ME 444, or perm.

ME **J417/J517 Turbomachinery** (3 cr). Introduction to the basic principles of modern turbomachinery. Emphasis is placed on steam, gas (combustion), wind and hydraulic turbines. Applications of the principles of fluid mechanics, thermodynamics and aerodynamics to the design and analysis of turbines and compressors are incorporated. Additional technical research report and presentation reqd for grad cr. Prereq: Engr 320, Engr 335, or perm.

ME **J420/J520 Fluid Dynamics** (3 cr). Same as CE J420/J520. Cr not granted for both ME 420 and ME 520. A second fluid dynamics course featuring vector calculus and integral and differential forms of the conservation laws. Topics include fluid properties, fluid statistics, inviscid flow; conservation of mass, momentum, and energy; and turbulence. Other topics may be covered. Additional projects/assignments reqd for grad cr. Prereq: Engr 335, Math 310, or perm.

ME **422 Applied Thermodynamics** (3 cr). Advanced topics in applied thermodynamics including availability (exergy) analysis of systems, advanced power and refrigeration cycles, combustion, thermodynamic properties of real fluids, phase equilibrium, and chemical equilibrium. Prereq: Engr 320.

ME **424 Mechanical Systems Design I** (3 cr). Study of production realization process including project planning, concept design, detail design, and manufacturing processes; modern design and manufacturing practices in each of these areas applied to a two-semester, industrial sponsored capstone design project (continued in ME 426). Prereq: ME 301, 323, 324, 341, 345, and Engr 335.

ME **425 Machine Component Design** (3 cr). Design of machine components in context of material selection, machineability, joining, materials strengthening and surface treatment; design using metals, non metals and composite materials for strength, fatigue, creep and corrosion resistance; other topics include lubrication theory, bearing selection, fasteners and spring design; discussion of case studies. Prereq: ME 261, 324, and 341.

ME **426 Mechanical Systems Design II** (3 cr). Continuation of ME 424. Additional manufacturing issues; continuation of a two-semester, industrial sponsored capstone design project (begun in ME 424) to include the detail design, prototype construction, and testing. Prereq: AmSt 301; Econ 201, 202, or 272; and ME 313, 330, 424, 425, and 435.

ME **427 Computer Aided Design** (3 cr). CAD techniques, including finite element and optimum design, applications to mechanical structural and thermal systems with practical design constraints. Prereq: ME 341 or CE 342. Coreq: ME 345, or CE 441 and 444, or perm.

ME **430 Senior Lab** (3 cr). Detailed lab investigation of engineering problem; statistical design of experiments; application of engineering principles to analyze experimental data; technical report writing; oral communication skills. One lec and four hrs of lab a wk. Prereq: ME 313 and 330. Coreq: Engl 317.

ME **431 Manufacturing Processes Lab** (3 cr). Study and measurement of manufacturing process variables; application of engineering principles to analyze experimental data. Prereq: ME 330. Coreq: Engl 317.

ME **433 Combustion Engine Systems** (3 cr). Theory and characteristics of combustion engines; combustion process analysis; fuels, exhaust emissions and controls; system analysis and modeling. Coreq: ME 345 or perm.

ME **435 Thermal Energy Systems Design** (3 cr). Application of fluid mechanics, thermodynamics and heat transfer in the design of thermal energy systems; topics include thermal energy system component analysis and selection, component and system simulation, dynamic response of thermal systems, and system optimization. Prereq: Engr 335 and ME 345.

ME **443** (s) **Analysis of Thermal Energy Systems** (3 cr, max arr). Analysis of thermal energy systems; topics vary depending on instructor and may include one or more of the following thermal systems: solar energy, refrigeration, vapor power generation, gas power generation, geothermal energy, wind energy, fuel cells, nuclear energy, thermoelectric systems, and thermionic systems. Prereq: Engr 335 and ME 345; perm reqd to repeat course for credit.

ME **ID&WS444 Air Conditioning Engineering** (3 cr). WSU M E 419. Requirements for air conditioned spaces for human comfort; thermodynamic properties of air-water vapor mixtures; heating and cooling loads; design of systems for heating, cooling, and ventilation. Prereq: ME 345.

ME **J451/J551 Experimental Methods in Fluid Dynamics and Heat Transfer** (3 cr). Cr not granted for both ME 451 and ME 551. Theory and applications of transducers and instrumentation to measure velocity, temperature, and related quantities; flow visualization, pressure measurements, thermal anemometry, laser Doppler velocimetry, temperature and concentration measurement, and heat flux measurement. Additional projects/assignments reqd for grad cr. One 1-1/2 hr lec and one 3-hr lab a wk. Prereq: ME 330. Coreq: Engl 317, ME 345, or perm.

ME **461 Fracture Mechanics** (3 cr). Fracture mechanics approach to structural integrity, fracture control, transition temperature, microstructural and environmental effects, fatigue and failure analysis. Prereq: ME 261 and Engr 350.

ME **ID463 Mechanics of Materials Processing** (3 cr). WSU M E 453. Same as MSE 463. Mechanics and energy balances in unit processes in materials manufacturing; processes include casting, rolling, extrusion and sheet forming; inelastic deformation applied to model some unit manufacturing processes; other processes explored as time and interest permit. Prereq: ME 341 and 345.

ME **ID&WS472 Mechanical Vibrations** (3 cr). WSU M E 449. Free and forced vibration of single and multiple degree of freedom systems; response of mechanical systems to inputs of varying complexity, ranging from single frequency to pseudo-random; applications to mechanical design and vibration control. Prereq: Engr 220, Math 310, and ME 313; or graduate standing.

ME **473 Experimental Stress Analysis** (3 cr). Measurement of static displacements, strains and stresses on deformable bodies; use of a universal test frame, extensometers, and strain gauges for quantitative static measurements, photoelasticity and brittle coating techniques for qualitative static measurements. Prereq: ME 341.

ME **J476/J576 Automation, Robotics, and Computer Integrated Manufacturing** (3 cr). Cr not granted for both ME 476 and ME 576. Comprehensive technical survey of important topics in production automation and related systems; flow line production, industrial robotics, material handling, group technology, flexible manufacturing systems, process control, and computer integrated manufacturing (CIM). Additional projects/assignments reqd for grad cr. Prereq: Math 310.

ME **J477/J577 Design for Manufacture and Assembly** (3 cr). Techniques to design for ease of production of components that form a product and the assembly of those components; techniques for design for other life-cycle issues such as design for service and design for the environment. Additional assignments reqd for grad cr. Coreq: ME 424 or equiv.

ME **ID&WS481 Control Systems** (3 cr). WSU M E 481. Same as EE 470. Analysis and design of feedback control systems utilizing frequency and time domain methods, and computer-aided design tools. Prereq for EE and CoE majors: EE 350. Prereq for ME majors: ME 313.

ME **499** (s) **Directed Study** (cr arr). Selected topics. Detailed report reqd. Prereq: Sr standing and perm.

ME **500 Master's Research and Thesis** (cr arr).

ME **502** (s) **Directed Study** (cr arr). Supervised study, including critical reading of current literature. Prereq: perm.

ME **503** (s) **Workshop** (cr arr). Prereq: perm.

ME **504** (s) **Special Topics** (cr arr). Prereq: perm.

ME **508 Mechanics of Plates and Shells** (3 cr). Formulation of governing equations, assumptions, stress analysis, calculation of displacements, discussion of experimental analysis, buckling and vitration of plates and shells. Prereq: ME 341 or CE 342.

ME **513 Engineering Acoustics** (3 cr). See ME J413/J513.

ME **514 HVAC Systems** (3 cr). See ME J414/J514.

ME **515 Transport Phenomena** (3-4 cr). See ChE 515.

ME **WS516 Acoustics** (3 cr). WSU M E 548.

ME **517 Turbomachinery** (3 cr). See ME J417/J517.

ME **519 Fluid Transients** (3 cr). See CE 519.

ME **520 Fluid Dynamics** (3 cr). See ME J420/J520.

ME **R525 Advanced Heat Transfer** (3 cr). See ChE 525.

ME **ID&WS526 Statistical Thermodynamics** (3 cr). WSU Ch E and M E 526. Probability theory and quantum mechanics, statistical mechanics, thermodynamic probability, molecular interpretation of first and second laws; kinetic theories. Prereq: Engr 320.

ME **ID&WS527 Thermodynamics** (3 cr). WSU M E 527. Thermodynamic laws for design and optimization of thermodynamic systems, equations of state, properties of ideal and real fluids and fluid mixtures, stability, phase equilibrium, chemical equilibrium, applications of thermodynamic principles. Prereq: Engr 320 or perm.

ME **529 Combustion and Air Pollution** (3 cr). Formation of pollutants during combustion processes and their subsequent transformations in the atmosphere; emphasis on the effects of design and operating parameters of combustion devices on the nature and composition of exhaust gases, improvements, post-combustion treatment of effluent gases, atmospheric chemistry, transport of pollutants, smog formation, acid rain, ozone formation and destruction. Prereq: Engr 320 and 335, ME 345 or perm.

ME **ID&WS534 Mechanics of Composite Materials** (3 cr). WSU M E 534. Same as MSE 536. Analysis of micromechanical and macromechanical behavior of composite materials with emphasis on fiber-reinforced composite; prediction of properties; stiffness and strength theories; laminated beams and plates; dynamic behavior; environmental effects. Prereq: ME 341 or CE 342.

ME **535 Failure of Structural Materials** (3 cr). See Met 535.

ME **539 Advanced Mechanics of Materials** (3 cr). Same as CE 510 and MSE 539. Limitations of results of elementary mechanics of materials, complex situations of loading and structural geometry, applications to design of machines and structure, introduction to elasticity. Prereq: ME 341 or CE 342.

ME **540 Continuum Mechanics** (3 cr). Same as CE 540. Stress and deformation of continua using tensor analysis; relationship between stress, strain, and strain rates in fluids and solids; applications. Prereq: perm.

ME **541 Mechanical Engineering Analysis** (3 cr). Mathematical modeling and solutions to mechanical engineering problems; analytical solutions to linear heat and mass diffusion, waves and vibrations; introduction to approximate techniques. Prereq: ME 345, ME 341 or equiv.

ME **WS542 Optimal Control of Dynamic Systems** (3 cr). WSU M E 542.

ME **544 Conduction Heat Transfer** (3 cr). Formulation of steady-state and transient one- and multi-dimensional heat conduction problems; analytical solution techniques for linear problems including separation of variables, integral transforms, and Laplace transforms. Prereq: ME 345 or equiv, or perm.

ME **545 Numerical Conduction Heat Transfer** (3 cr). Steady-state and transient conduction and advection of heat; analytical and numerical methods including finite differences, finite elements, and boundary elements. Prereq: ME 345.

ME **ID&WS546 Convective Heat Transfer** (3 cr). WSU M E 515. Energy conservation equations; laminar and turbulent forced convective heat transfer; internal and external flow; free convection. Prereq: ME 345 or perm.

ME **ID&WS547 Thermal Radiation Processes** (3 cr). WSU M E 514. Thermal radiation; radiation interchange among surfaces; radiation in absorbing-emitting gases; combined modes of heat transfer. Prereq: ME 345 or perm.

ME **548 Elasticity** (3 cr). Same as CE 548. Mathematical analysis of strain and stress, including vectors, tensors, and coordinate transformations; equations of elasticity; stress problems involving extension, torsion, and flexure; theories of failure. Prereq: ME 341 or CE 342.

ME **549 Finite Element Analysis** (3 cr). See CE 546.

ME **551 Experimental Methods in Fluid Dynamics and Heat Transfer** (3 cr). See ME J451/J551.

ME **WS556 Numerical Modeling in Fluid Mechanics** (3 cr). WSU M E 556.

ME **557 Advanced Fluid Dynamics** (3 cr). Potential flow and boundary layer theory, plus one or more advanced topics. Prereq: ME J420/J520 or 540 or perm.

ME **ID&WS572 Advanced Vibrations** (3 cr). WSU M E 541. Same as EE 575. Free and forced vibration of strings, membranes and plates; response to random inputs; advanced topics in spectral analysis to include statistical properties, windowing, and the zoom transforms; analysis of nonlinear systems including linearization, local and global stability, perturbation methods, and numerical simulation; introduction to chaos theory. Prereq: ME 472 or EE 470 or perm.

ME **WS574 Advances in Manufacturing Science** (3 cr). WSU M E 574.

ME **575 Optimal Control Theory** (3 cr). See EE 574.

ME **576 Automation, Robotics, and Computer Integrated Manufacturing** (3 cr). See ME J476/J576.

ME **577 Design for Manufacture and Assembly** (3 cr). See ME J477/J577.

ME **578 Neural Network Design** (3 cr). See EE 578.

ME **580 Linear System Theory** (3 cr). See EE 572.

ME **ID&WS581 Fuzzy Logic Control Systems** (3 cr). Same as EE 573. Introduction to fuzzy logic control systems and the methods used to design these systems. Prereq: ME 481 or EE 470 or perm.

ME **582** (s) **Advanced Topics in Control Systems** (3 cr). See EE 577.

ME **583 Reliability of Engineering Systems** (3 cr). See CE 541.

ME **585 Advanced Topics in Engineering Design** (3 cr). Introduction to advanced methodologies for the design and manufacture of products; topics include robust design, conrecurrent engineering, design for manufacture and assembly, and expert systems. Prereq: ME 424 and Stat 301, or grad standing and perm.

ME **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

ME **600 Doctoral Research and Dissertation** (cr arr).

# Medical Science

**Michael B. Laskowski, Director, WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Medical Education Program (304 Student Health Services Bldg. 83844-4207; phone 208/885-6696; e-mail brendah@uidaho.edu).**

Note: Ordinarily, only students enrolled at the University of Washington School of Medicine register to take medical science courses. Matriculated graduate and senior undergraduate students may register for credit in certain medical science courses under appropriate circumstances. In such cases prior approval must be obtained from the faculty member chairing the course and the WWAMI director. Permission to register will usually depend on the student also having approval from his or her academic advisor (senior undergraduate students must also obtain approval from the vice provost for research and graduate studies) and be limited to not more than two medical science courses per semester. MedS 505 (Preceptorship) and MedS 513, 522, and 535 (Introduction to Clinical Medicine I, II, and III) are closed to all but WWAMI medical students.

MedS **501** (s) **Seminar** (cr arr).

MedS **502** (s) **Directed Study** (cr arr). Areas normally offered are directed dissection of the extremities, trunk, head, neck, abdomen, and pelvis; endocrinology, physiology, and other medically related studies.

MedS **504** (s) **Special Topics** (cr arr).

MedS **505 Preceptorship** (cr arr). To provide opportunity for first-year medical students to gain personal experience with and insight into medical practice situations; the student will be stationed with physicians in their offices in accordance with the student's preference of discipline at the WWAMI sites.

MedS **ID&WS510 Histology** (3 cr). WSU Med S 510. Microscopy of cells; tissues and organs of the human body; emphasis on function. Three lec and one 3-hr lab a wk.

MedS **ID&WS511 Anatomy of the Trunk** (5 cr). WSU Med S 511. Regional study of anatomy of human thorax, abdomen, pelvis, and perineum in correlation with clinical cases. Two lec and one 3-hr lab a wk.

MedS **ID&WS512 Basic Mechanisms in Cellular Physiology** (4 cr). WSU Med S 512. Basic physiological mechanisms, primarily at the cellular level.

MedS **ID&WS513 Introduction to Clinical Medicine I** (1 cr). WSU Med S 513. Communication skills and interview techniques to form the basis for the eventual doctor-patient relationship.

MedS **ID&WS514 Molecular and Cellular Biology I** (3 cr). WSU Med S 514. Classical molecular and cellular biochemistry, cellular physiology, and molecular genetics.

MedS **ID&WS516 Systems of Human Behavior** (2 cr). WSU Med S 516. Conceptual systems and models of behavior, normality and abnormality, environment and social learning, conditioning, learning in the autonomic nervous systems, catecholamines and behavior, illness behavior, feelings, emotion and cognition, physician-patient interaction, diseases and techniques of behavior change; human development from birth to senescence emphasizing disorders that occur during various life phases.

MedS **ID&WS520 Cell and Tissue Response to Injury** (4 cr). WSU Med S 520. Cell and tissue injury, inflammation, and neoplasia.

MedS **ID&WS521 Natural History of Infectious Diseases and Chemotherapy** (5 cr). WSU Med S 521. Pathogenesis, resistance, epidemiology, clinical manifestations and control of bacterial, fungal, parasitic, and viral infectious diseases, principles of chemotherapy and asepsis; sterilization; nosocomial and iatrogenic infections and prevention.

MedS **ID&WS522 Introduction to Clinical Medicine II** (2 cr). WSU Med S 522. Continuation of communication skills especially as related to and dealing with medical history.

MedS **ID&WS523 Medical Immunology** (2 cr). WSU Med S 523. Principles of immunology and their relationship to human medicine.

MedS **ID&WS524 Molecular and Cellular Biology II** (2 cr). WSU Med S 524. Continuation of MedS 514.

MedS **ID&WS526 Systems of Human Behavior** (2 cr). WSU Med S 526. See MedS ID&WS516 for description.

MedS **ID&WS531 Head, Neck, Ear, Nose, and Throat** (5 cr). WSU Med S 531. Gross anatomy, including skull, pharynx, and larynx; audition and balance.

MedS **ID&WS532 Nervous System** (5 cr). WSU Med S 532. Normal structure and function of the nervous system, including the eye.

MedS **ID&WS535 Introduction to Clinical Medicine III** (2 cr). WSU Med S 535. Screening physical exam.

# Metallurgical Engineering

**Francis H. (Sam) Froes, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).**

Met **101 Introduction to Metallurgy and Materials Science** (1 cr). Same as MSE 101. Earth resources, metallurgy, materials science, and manufacturing.

Met **130 Engineering Analysis and Computations** (3 cr). See Min 130.

Met **200** (s) **Seminar** (cr arr). Prereq: perm.

Met **201 Elements of Materials Science** (3 cr). Same as ME 261 and MSE 201. Principles relating properties of metals, ceramics, polymers, and composites to their structures. Prereq: Chem 111.

Met **202 Microstructural Evaluation** (2 cr). Same as MSE 202. Techniques for preparing materials for observation and evaluation of microstructure by optical and scanning and transmission electron microscopy. One 2-hr and one 3-hr lab a wk. Coreq: ME 261.

Met **204** (s) **Special Topics** (cr arr). Prereq: perm.

Met **205 Introduction to Metallurgy** (3 cr). Mineral processing, hydrometallurgy, pyrometallurgy, and electrometallurgy; principles of materials science; structures, properties, and processes; phase diagrams and welding. Two lec and 1 hr of lab demonstration a wk; extra lab time reqd as assigned. Prereq: Math 175, Chem 112, and CS 112 or equiv. Coreq: Engr 210.

Met **299** (s) **Directed Study** (cr arr). Prereq: perm.

Met **308 Thermodynamics of Materials** (3 cr). Same as MSE 308. Intro; first, second, and third law; auxiliary functions; behavior of solutions; free energy composition and phase diagrams of binary systems; reaction equilibria in systems containing components in condensed solutions; ternary diagrams; thermodynamics of alloys and ceramic materials. Prereq: Chem 111 and 112, and Math 310.

Met **ID309 Transport Phenomena for Design** (4 cr). WSU MSE 309. Same as MSE 309. Mass, momentum, and energy balances applied to materials process and reactor design. Prereq: Math 275, Phys 212, Engr 210, and Chem 112. Coreq: Math 310.

Met **313 Physical Metallurgy** (4 cr). Same as MSE 313. Theory, structure, and properties of materials. Prereq: Met/MSE 201 or ME 261.

Met **ID341 Particulate Materials Processing** (4 cr). WSU MSE 341. Same as MSE ID341. Engineering science of particulates; powder production, powder properties, separation; design of systems applied to metals, ores, and concentrates. Three lec and one hr of lab a wk; two 1-day field trips. Prereq: Chem 112, Engr 210, CS 112, Met 211, ME 261. Coreq: Math 310.

Met **344 Hydroprocessing of Materials** (4 cr). Same as MSE 344. Intro to hydroprocessing; dissolution of metals, minerals, and materials; recovery of metals from solutions: solvent extraction, ion exchange, precipitation; electrometallurgy; bioprocessing; design of agitators, mixer-settlers, electrolytic cells; flowsheet design and analysis. Three lec and one 3-hr lab a wk. Prereq: Met 308, 211, and 309.

Met **400** (s) **Seminar** (cr arr). Review of current literature. One 3-day field trip. Prereq: perm.

Met **404** (s) **Special Topics** (cr arr). Prereq: perm.

Met **405 Industrial Minerals Processing and Design** (3 cr). Equipment description, selection, and use in flowsheet design; includes crushing, grinding, screening, washing, and other classifying operations; also includes flowsheet design for industrial minerals such as sand and gravel, aggregate, limestone, and others. Prereq: Min 103 and 405.

Met **406 Treatment Technology for Recycled Waste** (3 cr). Basic principles needed by technologies for treatment of recycled wastes; examination of various unit operations; numerical examples extensively used in design of particular operational units; some demonstrations in state of the art laboratories. Prereq: Open for seniors in engineering and applied sciences and graduate students.

Met **ID407 Materials Fabrication** (3 cr). WSU MSE 407. Same as MSE ID407. Fundamentals of casting, solidification, working, and joining of materials; emphasis on interaction between processing, properties, structure, and design. Semester project covering design of procedure for fabrication. Two 1-day field trips.

Met **J409/J509 Solution Mining** (3 cr). Same as Min J409/J509. Metal extraction from rubblized rock: chemistry, biology, transport, leaching kinetics, solution flow, aeration, rock permeability and alteration, leaching simulation, environmental containment, safety, metal recovery from solutions; well and reservoir technology; brine evaporation and extraction. Term paper or other additional assignments/projects reqd for grad cr. Prereq: Chem 111. (Alt/yrs)

Met **J410/J510 Plasma Processing of Materials** (3 cr). Same as MSE J410/J510. Fundamentals of thermal plasma processing of materials; examples of current and future industrial applications. Additional projects/assignments reqd for grad cr. Prereq: Sr standing or grad student.

Met **412 Mechanical Behavior of Materials** (3 cr). Same as MSE 412. Mechanical properties of solids, testing methods, failure processes and theories, plasticity, mechanical processes in materials. Prereq: Met/MSE 201 or ME 261.

Met **J413/J513 Phase Equilibria in Materials** (3 cr) (Met 514). Same as MSE J413/J513. Equilibria in materials systems, including relationship of fee energy to phase diagrams. Prereq: Met/MSE 313. (Alt/yrs)

Met **414 Process Design** (3 cr). Same as MSE 414. Problem definition, flowsheet synthesis, equipment design, economic analysis, optimization and reporting; heuristic and open-ended design problems based on prior minerals, materials, and extractive process courses, economics, and basic and engineering science. Prereq: Min 352; Met 308, 309, 310, 341, 344, 442.

Met **ID415 Materials Selection and Design** (3 cr). WSU MSE 415. Same as MSE ID415. Selection of materials for use in structural applications; consideration of environment, stress conditions, cost, and performance as guide to properties; optimization of choice of materials and fabrication methods; open-ended problems of real applications in various industries. Prereq: Met 316 and 407.

Met **J416/J516 Magnetic Materials** (3 cr). Same as MSE J416/J516. Study of paramagnetic, superparamagnetic, diamagnetic, ferrimagnetic, ferromagnetic, antiferromagnetic, magnetic anistropy, magnetostriction and the effect of stress, magnetic domain and magnetization process, induced magnetic anisotropy, magnetic fine particles, magnetic thin film, magnetization dynamics, hard magnet, soft magnet, magnetic recording, magnetic head, magnetic media, magneto-optical recording. Additional projects/assignments reqd for grad cr. Prereq: Sr standing, grad student, or perm.

Met **417 Instrumental Analysis** (3 cr). Same as MSE 417. Principles and laboratory experiments in x-ray diffraction, scanning electron microscopy, transmission electron microscopy, aqueous analytical techniques, etc. Two lec and one 3-hr lab a wk. Prereq: Jr/Sr standing.

Met **J419/J519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Met **ID-J421/J521 Light Metals** (3 cr). WSU MSE 421. Same as MSE ID-J421/J521. Principles behind the physical metallurgy of the light metals Al, Mg, Ti, Be; discussion of characteristics and applications of alloys based on these metals. Additional projects/assignments reqd for grad cr. Prereq: Met 313, 316.

Met **J423/J523 Corrosion** (3 cr). Same as MSE J423/J523. Engineering aspects of corrosion and its control presented in ways of importance to a practicing engineer. Topics include corrosion economics, detecting and monitoring corrosion, regulations, specifications, safety. Emphasis on corrosion monitoring and corrosion fundamentals: chemical and electrochemical reactions; chemical and electrochemical equilibria-including Pourbaix diagrams; electrochemical kinetics. Selection and use of materials, from stainless steels to plastics. Failure analysis. Additional projects/assignments reqd for grad cr. Prereq: Chem 111, 112, and Met/MSE 201. (Fall only)

Met **424 Phase Transformations** (3 cr). Thermodynamics and phase diagrams, diffusion, solidification, diffusional transformation, diffusionless transformations.

Met **J425/J525 Electronic Materials** (3 cr). Same as MSE J425/J525. The chemistry, physics, and materials science relating to fabrication and processing steps; materials properties and device properties; structures of electronic materials; electronic energy band; electrical properties of semiconductors; optical properties; interface; thermodynamics of compound semiconductors; semiconductor devices; optoelectronic devices; single crystal growth; amorphous silicon; control of semiconductor conductivity; dielectric materials; piezoelectronic materials; superconducting materials. Additional projects/assignments reqd for grad cr. Prereq: Sr standing, grad student, or perm.

Met **J427/J527 Ceramics Materials** (3 cr). Same as MSE J427/J527. Crystallography, ceramic crystal structures, phase diagrams, phase transformation; mechanical properties, thermal properties, electrical and magnetic properties. Additional projects/assignments reqd for grad cr. Prereq: Met/MSE 313 or perm.

Met **ID-J429/J529 Melting, Casting, and Powder Metallurgy** (3 cr). WSU MSE 429. Same as MSE ID-J429/J529. Principles behind a number of commercially important and developing synthesis technologies such as conventional powder metallurgy, rapid solidification, mechanical alloying, plasma processing, vapor deposition, and thermochemical processing. Additional projects/assignments reqd for grad cr. Prereq: Met 313 and 316.

Met **442 Pyroprocessing of Materials** (4 cr). Same as MSE 442. History of pyroprocessing; hydroprocessing versus pyroprocessing; thermodynamic principles; roasting; sintering; smelting of non-ferrous materials; smelting of ferrous materials; furnaces; flowsheet design and analysis; pyroprocessing of ceramic materials. Three lec and one 3-hr lab a wk. Prereq: Met 211, 308, and 309.

Met **ID461 Metallurgical Control and Optimization** (3 cr). WSU Math and MSE 461. Basics of process control and optimization applied to metallurgical engineering.

Met **480 Transmission Electron Microscopy of Materials** (3 cr). Same as MSE 480. Basic principles and applications of transmission electron microscopy as applied to materials; topics include formation and interpretation of electron diffraction patterns and images; kinematic and dynamical theories of contrast; interpretation of electron micrographs from crystals containing point defects, dislocations, stacking faults and precipitates; high-resolution and high-voltage electron microscopy techniques.

Met **499** (s) **Directed Study** (cr arr). Prereq: perm.

Met **500 Master's Research and Thesis** (cr arr).

Met **501** (s) **Seminar** (cr arr). Prereq: perm.

Met **502** (s) **Directed Study** (cr arr). Prereq: perm.

Met **504** (s) **Special Topics** (cr arr). Prereq: perm.

Met **505 Advanced Rate Phenomena in Metallurgical Engineering** (3 cr). Same as MSE 520. Principles of rate phenomena in metallurgical engineering. Prereq: perm.

Met **506 Advanced Ore Dressing** (3 cr). Theories of comminution; flotation and related surface phenomena; electrical and magnetic concentration; process control. Prereq: Met 341 or perm.

Met **508 Control of Metallurgical Processes** (3 cr). Control variables of metallurgical processes. Prereq: perm.

Met **509 Solution Mining** (3 cr). See Met J409/J509.

Met **510 Plasma Processing of Materials** (3 cr). See Met J410/J510.

Met **511 Advanced Physical Metallurgy** (3 cr). Theory of metals and alloys; application to problems of structure; properties of engineering metals. Prereq: perm. (Alt/yrs)

Met **513 Phase Equilibria in Materials** (3 cr) (Met 514). See Met J413/J513.

Met **516 Magnetic Materials** (3 cr). See Met J416/J516.

Met **517 Kinetics of Metallurgical Reactions** (3 cr). Same as MSE 517. Application of absolute rate theory; time and temperature dependence; kinetics of gas-solid reactions; corrosion, diffusion, and recrystallization. Prereq: perm. (Alt/yrs)

Met **518 Advanced Mechanical Metallurgy** (3 cr). Same as MSE 518. Micro- and macroscopic theories of deformation; materials-forming processes; mechanical tests. Prereq: perm. (Alt/yrs)

Met **519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Met **521 Light Metals** (3 cr). See Met J421/J521.

Met **523 Corrosion** (3 cr). See Met J423/J523.

Met **525 Electronic Materials** (3 cr). See Met J425/J525.

Met **527 Ceramics Materials** (3 cr). See Met J427/J527.

Met **528 Advanced Engineering Ceramics** (3 cr). Same as MSE 528. Advanced materials: zirconia, alumina, silicon carbide, silicon nitride, glass ceramics, ceramic matrix composites, other miscellaneous non-oxides; advanced processing techniques: injection molding, combustion synthesis, hot isostatic pressing, superplastic forming, shock synthesis, plasma processing. Prereq: Met 527 or perm.

Met **529 Melting, Casting, and Powder Metallurgy** (3 cr). See Met J429/J529.

Met **533 Advanced X-ray Diffraction** (3 cr). Same as MSE 533. Principles and applications to advanced problems. Prereq: perm.

Met **R534 Radiation Effects in Materials** (3 cr). Same as MSE R534. Interactions between radiation and solids. Prereq: perm.

Met **535 Failure of Structural Materials** (3 cr). Same as ME 535 and MSE 535. Mechanisms by which failure can occur in structural materials. Prereq: ME 261 or Met 201, Engr 350.

Met **R538 Corrosion in Metallurgy** (3 cr). Corrosion by aqueous media, gases, liquid metals, and fused salts. Prereq: physical chemistry, incl electrochemistry, or perm.

Met **597** (s) **Practicum** (cr arr). Prereq: perm.

Met **598** (s) **Internship** (cr arr). Prereq: perm.

Met **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Microbiology, Molecular Biology and Biochemistry

**Gregory A. Bohach, Head, Dept. of Microbiology, Molecular Biology and Biochemistry (142 Life Sc. Bldg. 83844-3052; phone 208/885-7966; mmbb@uidaho.edu; http://www.uidaho.edu/micro_biology).**

MMBB **105 Survey of Biotechnology** (1 cr). Descriptions and discussions of research and career opportunities in biotechnology; genetic engineering concepts; pharmaceutical, environmental, plant and animal systems.

MMBB **111 Microbial Genetics** (3 cr). Principles of microbial genetics and their application to model biological systems, including fruit flies, maize, and humans; dominance and epistasis, complementation and recombination, mutation and mutagenesis, reversion and suppression, fate determination and development. Prereq or coreq: Chem 111.

MMBB **154 Introductory Biology of Bacteria and Viruses** (3 cr) (C). May be used as core credit in *J-3-b* when taken with MMBB 155. May be taken by microbiology majors, but carries no cr after MMBB 250. Introduction to microorganisms and their role in disease, health, foods, and the environment; current topics in microbiology.

MMBB **155 Introductory Biology of Bacteria and Viruses Laboratory** (1 cr). May be used as core credit in *J-3-b* when taken with MMBB 154. May be taken by microbiology majors but carries no credit after MMBB 250. Introductory laboratory training in basic microbiology; includes sterile technique, bacterial enumeration methods, culturing techniques, yogurt preparation and analysis, recombinant DNA techniques. Three hrs of lab a wk. Coreq: MMBB 154.

MMBB **250 General Microbiology** (5 cr). Intro to nature and activity of bacteria and other microorganisms; their importance in all life systems. Three hrs of lec and two 2-hr labs a wk. Prereq: Chem 101 or 111.

MMBB **300 Survey of Biochemistry** (3 cr). Carries no credit after MMBB 380. Survey of structure, function, and metabolism of major constituents of living systems. Prereq: Chem 101 or 111. Coreq: Chem 275 or 277.

MMBB **ID380 Introductory Biochemistry** (4 cr). WSU MBioS 303. Carries one credit after MMBB 300. Introduction to the structure, function, and metabolism of major constituents of living systems. Three hrs lec and one hr with interactive problem solving. Prereq: Chem 101 or 111, and 277. Recommended preparation: Chem 253 and 372.

MMBB **ID382 Introductory Biochemistry Laboratory** (2 cr). WSU MBioS 304. Lab training in modern methods. One 3-hr lab and one 1-hr recitation a wk. Prereq: Chem 101 or 111, and 278. Prereq or coreq: MMBB 380 or equiv.

MMBB **398** (s) **Internship** (1-3 cr, max 3). Supervised internship in professional, non-University of Idaho settings, integrating academic study with work experience in the fields of microbiology, molecular biology or biochemistry; requires formal written plan of activities to be approved by academic advisor and departmental head before engaging in the work; a final report will be evaluated by on-campus faculty. Graded P/F. Prereq: perm.

MMBB **400** (s) **Seminar** (1cr, max arr). Graded P/F. May be used as a science elective after 1 required credit, up to a maximum of 4 credits,. Prereq: perm.

MMBB **401 Undergraduate Research** (1-2 cr, max 4). Individual study. Prereq: Sr standing and perm.

MMBB **WS403 Introductory Biochemistry** (4 cr). WSU BCBP 364.

MMBB **404** (s) **Special Topics** (cr arr). Prereq: perm.

MMBB **J409/J509 Immunology** (3 cr). Carries no credit after MMBB WS426. Theory and mechanisms of the cellular basis of immune response; antibody structure, function, and synthesis; cell-mediated immunity; complement; hypersensitivity; immunologic diseases; transplantation; tumor immunity. Extra oral and/or written assignments reqd for grad cr. Coreq: MMBB 380. (Alt/yrs)

MMBB **J412/J513 Pathogenic Microbiology** (3 cr). Epidemiology, host-parasite relationships, pathology, host response; treatment, prevention, and control of pathogenic microorganisms. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250. (Alt/yrs)

MMBB **WS414 General Virology** (3 cr). WSU MBioS 442. The biology of bacterial, animal, and plant viruses.

MMBB **WS415 General Virology Laboratory** (2 cr). WSU MBioS 443. Lab techniques concerning cultivation and characterization of viruses. Prereq: perm.

MMBB **ID416 Food Microbiology** (2 cr). WSU FSHN and MBioS 444. See FST ID416.

MMBB **ID417 Food Microbiology Laboratory** (2 cr). WSU FSHN 417 and MBioS 445. See FST ID417.

MMBB **WS420 Epidemiology** (3 cr). WSU MBioS 446. Study of diseases in human populations; concepts of etiology, disease rates, susceptibility, and risk factors, screening for disease, and prevention. Prereq: Jr standing.

MMBB **J425/J525 Microbial Ecology** (3 cr). Same as Soil J425/J525. Biogeochemical activities and relationships of microorganisms in soil, water, plants, and animals. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250, Math 137 or 143, or perm.

MMBB **WS426 Immunology** (3 cr). WSU MBioS 440.

MMBB **WS428 Basic and Applied Microbial Physiology** (3 cr). WSU MBioS 450.

MMBB **440 Advanced Laboratory Techniques** (4 cr). Intensive hypothesis-driven laboratory course that will prepare the student for research in molecular biology; emphasis on areas of microbial physiology, microbial genetics, immunology, and pathogenic microbiology. Prereq: MMBB 250.

MMBB **J442/J542 Biochemistry and Molecular Biology** (3 cr) (MMBB 480, 542). MMBB 542 same as Chem 542. Intermediate biochemistry; metabolism, molecular physiology, and molecular biology. Extra oral and/or written assignments required for grad credit. Prereq: Chem 372; MMBB 380 or Chem 302 or 306; or perm.

MMBB **ID-J450/J550 Molecular Mechanisms in Microbiology** (2 cr). WSU MBioS 447. In-depth discussion of molecular mechanisms and different experimental approaches in microbiology. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250. Coreq: MMBB 380.

MMBB **J460/J555 Microbial Physiology** (3 cr). Concepts of microbial growth, metabolism, regulation, variation, structural-functional relationships. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250. (Alt/yrs)

MMBB **ID-J468/ID-J568 Microbial Transformations** (3 cr). WSU MBioS 544. Use of microbes in the biodegradation of wastes and bioprocessing to produce valuable chemical stocks. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380, J460/J555.

MMBB **J475/J575 Molecular Biology of Cells** (3 cr). Introduction to the organization and function of the major components of the eukaryotic cell; emphasis on the composition of cells, the structures and assembly processes of molecules that make up cells, diversity of cell types found in multicellular organisms, and how common interacting processes are coordinately controlled. Extra oral and/or written assignments reqd for grad cr. Prereq: Biol 112 and either MMBB 300 or 380.

MMBB **J476/J576 Biophysical Chemistry** (3 cr). Basic principles and applications of physical chemistry as applied to biological processes. An emphasis will be placed on using thermodynamics to describe protein folding and stability and quantum mechanics to describe the principle spectroscopic methods used to study biological macromolecules. Additional oral and/or written assignments reqd for grad cr. Prereq for 476: Chem 372, Phys 112, MMBB 380, and MMBB 382. Coreq for 476: Math 160 or 170. Prereq for 576: MMBB 541.

MMBB **J485/J585 Prokaryotic Molecular Biology** (3 cr). Current theory and experimental basis for prokaryotic DNA, RNA, and protein synthesis, gene regulation and cell wall metabolism. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380. Prereq or coreq: MMBB 442.

MMBB **J486/J586 Plant Biochemistry** (3 cr). Biochemistry of higher plants with an emphasis on physiology and molecular biology. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380. (Alt/yrs)

MMBB **J487/J587 Eukaryotic Molecular Genetics** (3 cr). Molecular basis of genetics of eukaryotes. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 541 and MMBB J485/J585 or Biol 210, MMBB 480 and J488/J588.

MMBB **J488/J588 Genetic Engineering** (3 cr). Techniques and theory underlying practical genetic modifications of plants, microbes, and animals. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380 and Gene 314.

MMBB **490 Senior Thesis and Research** (2 cr, max 4). Problem solving using a combination of laboratory and/or library skills. Prereq: Sr standing.

MMBB **497** (s) **Practicum in Teaching** (1 cr, max 2). Teaching by advanced students under faculty supervision. Graded P/F. Prereq: perm.

MMBB **498** (s) **Internship** (1-3 cr, max 3). See MMBB 398 for description. Graded P/F. Prereq: perm.

MMBB **499** (s) **Directed Study** (cr arr). Prereq: perm.

MMBB **500 Master's Research and Thesis** (cr arr).

MMBB **501** (s) **Seminar** (1 cr, max arr). A maximum of 2 cr may be counted toward an M.S. degree and a maximum of 4 cr toward a Ph.D. Graded P/F. Prereq: perm.

MMBB **502** (s) **Directed Study** (cr arr). Areas normally offered are: molecular biology, microbiology and biochemistry. Prereq: perm.

MMBB **504** (s) **Special Topics** (cr arr). Prereq: perm.

MMBB **509 Immunology** (3 cr). See MMBB J409/J509.

MMBB **WS512 Immunology** (4 cr). WSU MBioS 540. The immune system at the animal, cellular, and molecular levels.

MMBB **513 Pathogenic Microbiology** (3 cr). See MMBB J412/J513.

MMBB **520 Instrumental Analysis** (2 cr). Theory and techniques involved in the use of various instruments in modern biological laboratories; topics include chromatography, spectrometry, sterilization, sample preparation, radioisotope techniques, electrophoresis, centrifugation, and fermentation. Prereq: perm.

MMBB **525 Microbial Ecology** (3 cr). See MMBB J425/J525.

MMBB **WS529 Molecular Techniques in Microbiology** (3 cr). WSU MBioS 506. Current molecular biology techniques applied to DNA and protein isolation and characterization; southern and western blots, PCR, PAGE, computer cloning. Prereq: graduate-level biochemistry or molecular biology course or perm.

MMBB **ID537 Soil Biochemistry** (3 cr). WSU SoilS 537. See Soil 537.

MMBB **ID&WS541 Biochemistry** (3 cr). Same as Chem 541. WSU MBioS 513 and V Ph 541. Max 7 cr in any combination of MMBB 380, 480, 541, and 542. Intermediate biochemistry; intro to metabolism and the chemical and physical properties of biomolecules. Prereq: Chem 372; MMBB 380 or coreq: Chem 302 or 306; or perm.

MMBB **542 Biochemistry and Molecular Biology** (3 cr). See MMBB J442/J542.

MMBB **550 Molecular Mechanisms in Microbiology** (2 cr). See MMBB J450/J550.

MMBB **555 Microbial Physiology** (3 cr). See MMBB J460/J555.

MMBB **560 Advanced Microbial Physiology** (3 cr). Use of current literature to study recent advances in research on the physiology of microorganisms. Prereq: MMBB J460/J555 or perm.

MMBB **564 Advances in Developmental and Cellular Biology** (1-4 cr, max 8). Molecular basis of cell differentiation and morphogenesis of three-dimensional structures in bacteria, fungi, plants, and animals. Prereq: MMBB J485/J585 and J487/J587 or perm.

MMBB **WS565-WS566 Molecular Biology I-II** (3 cr). WSU MBioS and GenCB 503/504.

MMBB **ID568 Microbial Transformations** (3 cr). See MMBB J468/J568.

MMBB **569 Techniques in Microbial Genetics** (3 cr). See MMBB J469/J569.

MMBB **WS570 Special Projects in Electron Microscopy** (2-3 cr). WSU E MIC 586.

MMBB **575 Molecular Biology of Cells** (3 cr). See MMBB J475/J575.

MMBB **576 Biophysical Chemistry** (3 cr). See MMBB J476/J576.

MMBB **WS578 Molecular Biology Computer Techniques** (4 cr). WSU MBioS 578.

MMBB **582 Proteins and Enzymes** (3 cr). Protein structure and function; mechanisms of enzyme action. Prereq: MMBB 541. (Alt/yrs)

MMBB **WS584 Special Topics in Electron Microscopy** (1 cr). WSU E MIC 587. Graded P/F.

MMBB **585 Prokaryotic Molecular Genetics** (3 cr). See MMBB J485/J585.

MMBB **586 Plant Biochemistry** (3 cr). See MMBB J486/J586.

MMBB **587 Eukaryotic Molecular Genetics** (3 cr). See MMBB J487/J587.

MMBB **588 Genetic Engineering** (3 cr). See MMBB J488/J588.

MMBB **589 Advanced Topics in Molecular Biology, Microbiology and Biochemistry** (1-9 cr, max 9). Recent research in enzymes, hormones, complex lipids, vitamins, nucleic acids, antibiotics, viruses, and MMBB genetics. Prereq: perm.

MMBB **590 Teaching Practicum** (1 cr, max 2). Teaching by master's students under faculty supervision. Graded P/F. Prereq: perm.

MMBB **591 Teaching Practicum** (1 cr, max 4). Teaching by Ph.D. students under faculty supervision. Graded P/F. Prereq: perm.

MMBB **598** (s) **Internship** (1-3 cr, max 3). See MMBB 398 for description. Graded P/F. Prereq: perm.

MMBB **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

MMBB **600** **Doctoral Research and Dissertation** (cr arr).

# Military Science

**Roger A. Arnzen, Head, Dept. of Military Science (West End, Mem. Gym. 83844-2424; phone 208-885-6528).**

MS **101 Introduction to Military Science** (1 cr). Introduction to mission and organization of the U.S. Army; provides background in role of an Army officer as a career choice in either the Active Army or the National Guard/Reserves; lec, conference, and activities dealing with military subjects; option of participating in challenging outdoor activities such as whitewater rafting, mountaineering, rifle marksmanship, and rappelling; texts and lab fees provided by dept; no mandatory uniform wear; students also learn about available two- and three-year scholarships and other financial programs for which they may be eligible. Coreq: MS 111. Participation entails no military obligation.

MS **102 Fundamentals of Leadership and Management** (1 cr). Continuation of MS 101. Development of greater understanding of roles and responsibilities of Army officers; lec, conference, and activities dealing with military subjects; participation in challenging outdoor activities such as orienteering, mountaineering, and weapons qualification; occasional uniform wear reqd; texts, uniforms, and lab fees provided by dept; more focus on leadership development and the development of personal confidence. Coreq: MS 112. Participation entails no military obligation.

MS **111-112 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 101-102.

MS **201 Applied Leadership and Management** (2 cr). Application of leadership and management skills to various case studies; organization and structure of Army units; basic first aid; practical field training in variety of outdoor skills (mountaineering, rafting, rifle marksmanship); uniform wear reqd; texts, uniforms, and lab fees provided by dept. Prereq: MS 102 or perm. Coreq: MS 211. Participation entails no military obligation.

MS **202 Applied Leadership and Management** (2 cr). Troop leading procedures and application of procedures to planning and conducting small unit operations; individual soldier skills, such as military communication, basic map reading, and survival skills; practical field training in variety of outdoor skills (mountaineering, rafting, rifle marksmanship); uniform wear reqd; texts, uniforms, and lab fees provided by dept. Prereq: MS 201 or perm. Coreq: MS 212. Participation entails no military obligation.

MS **211-212 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 201-202.

MS **280 Raider Operations** (1 cr, max 4). The Chrisman Raider Team is an elite group of individuals who compete on intercollegiate level in military skills of marksmanship, physical fitness, navigation, weapons, rope bridging, and long distance marching; rigorous physical training and practicing technical skills in preparation for two-day competition among schools throughout western U.S. Coreq: MS 101 or 102 or 201 or 202 or 301 or 302 or 401 or 402.

MS **289 Basic Encampment** (6 cr). Intensive five-week summer encampment at Fort Knox, Kentucky; hands-on training in fundamentals of leadership in a military environment, land navigation, weapons training, drill and ceremony, and basic skills in doctrinal tactics employed by light infantry leaders. Prereq: 50 cr hrs, 2.0 GPA, and perm of dept head.

MS **290 Color Guard/Drill Team** (1 cr, max 4). Participation and training in color guard and drill team. Coreq: MS 101 or 102 or 201 or 202 or 301 or 302 or 401 or 402.

MS **299** (s) **Directed Study** (cr arr). Prereq: perm.

MS **301-302 Advanced Leadership and Management** (3 cr). Practical leadership skills in a light infantry environment; leadership techniques practiced while learning patrolling and offensive and defensive tactics at squad and platoon level; prepares cadets for five-wk Advanced Camp at Fort Lewis, Washington. Three hrs of lec, 2 hrs of lab, and 3 hrs of physical training a wk, plus field training exercises. Prereq: either ROTC Basic Course, Camp Challenge, or Basic Training from any U.S. military branch of service. Coreq: MS 311, 312.

MS **311-312 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 301-302.

MS **401-402 Seminar in Leadership and Management** (3 cr). Practical application of leadership and management skills, military justice system, administrative and logistical procedures; preparation for service as an Army lieutenant. Prereq: MS 301-302. Coreq: MS 411-412, 471-472.

MS **411-412 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 401-402.

MS **471-472 Command and Staff Functions** (2 cr). Hands-on practical applications of functions of U.S. Army officers assigned to command and staff positions; planning, coordinating, and implementing operations, training and logistic support for cadet battalion activities; practical exercises in interrelationships between commander, staff, higher headquarters, and subordinate units. Coreq: MS 401-402.

MS **489** **Advanced Encampment** (cr arr). Intensive five-wk summer encampment at Ft. Lewis, Washington. Graded P/F. Prereq: MS 301-302 and perm.

MS **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Mining Engineering

**Francis H. (Sam) Froes, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).**

Min **103 Elements of Mining** (3 cr). Open to nonmajors. Terminology and mining's role in national economics and way of life; includes mineral economics, management, prospecting, discovery, development, exploitation, processing, marketing.

Min **130 Engineering Analysis and Computations** (3 cr). Same as GeoE/Met/MSE 130. Applications of computer software packages and structured programming to the analysis and solution of problems in materials, metallurgical, mining, and geological engineering. Two lec and 2 hrs of lab a wk. Prereq or coreq: Math 170.

Min **200** (s) **Seminar** (cr arr). Prereq: perm.

Min **204** (s) **Special Topics** (cr arr). Prereq: perm.

Min **290 Mine Development** (2 cr). Ore deposits, exploration techniques, reserve estimating, and preliminary mine development studies. Prereq: Geol 111 or perm.

Min **304 Blasting Engineering** (3 cr). Same as GeoE 320. Drilling and blasting equipment, MS detonation; use of commercial explosives and detonators; and design of blasting rounds (surface and underground). Students have an opportunity at the end of each semester to learn and practice explosive blasting at the blasting site. Prereq: Jr standing or perm.

Min **310 Safety Engineering for Excavation Industries** (3 cr) (Min 118). A program to provide knowledge and training under Public Law CFR 30, Part 48, Health and Safety Training, MSHA and OSHA requirement, First aids, Hazcom plans. Prereq: Soph standing or perm.

Min **350 Economics of Aggregates and Crushed Stone** (3 cr). Aggregate and crushed stone and other minerals as resources; importance and characteristics of their occurrence and production systems, market analysis, labor economics. Prereq: Econ 201, 202 or perm. (Spring only)

Min **J351/J561 Optimization of Engineering Systems** (3 cr). Applications of operations research theory and practice in the minerals industry; deterministic methods: linear, integer, and dynamic programming approaches to optimizing complex systems. Topics in stochastic processes and term project reqd for grad cr. Two lec and two hrs of lab a wk. Prereq: Math 175 or perm.

Min **352 Cost Engineering and Management** (3 cr). Same as GeoE 352. Time value of money, fundamentals of cost estimating, basic accounting, economic evaluation principles, cash flow modeling, project management, equipment selection and replacement analysis, decision analysis, risk and uncertainty. Prereq: Jr standing.

Min **370 Auxiliary Operations in Excavation Industries** (3 cr). Same as GeoE 370. Principles and design problems in compressed air power, hoisting, conveying, rail haulage, and material transfer. One field trip. Prereq: Min 103, Engr 210, or perm.

Min **372 Subsurface Ventilation and Environmental Management** (3 cr). Same as GeoE 372. Fundamentals of thermodynamics and heat transfer, mine gases, dusts, and airflow through mines, ventilation network analysis, fan selection, heat and other health and safety issues in subsurface structures, environmental management.

Min **380 Coal Mining Methods** (2 cr). Surface and underground coal mining methods, systems and design. Prereq: Min 103 or perm.

Min **400** (s) **Seminar** (cr arr). Prereq: perm.

Min **401 Rock Mechanics** (3-4 cr). Same as GeoE 407. Basic mechanical properties of rocks and rock masses; lab and in-situ tech to obtain strength, stress distribution, and deformation behavior in rock masses; application of analytical techniques such as the finite element method to design stable mine structures and supporting systems; basic mechanism and new tech of rock fragmentation relating to drilling, blasting, and crushing. Four credits with lab option. Prereq: Engr 350.

Min **404** (s) **Special Topics** (cr arr). Prereq: perm.

Min **405 Development of Industrial Minerals Deposits** (3 cr). Geological, engineering, and economic aspects unique in the development of quarries and industrial mineral deposits; effectively evaluate and design operation of such deposits.

Min **J409/J509 Solution Mining** (3 cr). See Met J409/J509.

Min **J410/J510 Simulation of Engineering Systems** (3 cr). Use of the GPSS simulation language for simulation of mine engineering systems; topics in inventory control, scheduling, and optimization; animation of simulation results. Additional projects/assignments reqd for grad cr. Prereq: Jr standing.

Min **J419/J519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Min **421 Engineering Geophysics** (3 cr). Same as GeoE and Geop 421. Quantitative treatment of surface and borehole geophysics with emphasis on engineering problems. Three 1-day field trips.

Min **422 Principles of General Geophysics** (3 cr). See Geop 422.

Min **428 Geostatistics** (3 cr). See GeoE 428.

Min **440 Mine Modeling and Feasibility Studies** (3 cr). Conventional and geo-statistical ore reserve estimation methods, computer applications in reserve estimation and preliminary mine design, and feasibility study.

Min **450 Surface Mine Design** (3 cr). Principles of surface mine design (quarries, hard rock, coal, oil sands), mine surveying, mine production planning and scheduling, mine equipment selection and replacement, geographic information and management information systems. Computerized mine design using Gemcom and/or other appropriate software. One surveying field trip. Prereq: Min 103, 351, 352, CE 211 or perm.

Min **451 Underground Mine Design** (3 cr). Evaluation and selection of underground mining methods and engineering systems; mine surveying, costing, and modeling. Two lec and two hrs of lab a wk; one surveying field trip (joint with Min 450). Prereq: Min 103, 351, 352, CE 211 or perm.

Min **453 Mine Drainage and Pumping** (2 cr). Design of drainage and pumping system, including construction drawings and equipment specification. Six hrs of lab a wk.

Min **472 Mineral Industry Case Studies** (3 cr). Same as Geog 492 and Geol 472. Laws, environment, and social issues through definition, evaluation, exploitation, and production of the resource to final sales, transportation economics, and reclamation; specific cases examined by multidisciplinary groups producing a final decision. Prereq: Sr standing and perm.

Min **499** (s) **Directed Study** (cr arr). Prereq: perm.

Min **500 Master's Research and Thesis** (cr arr).

Min **501** (s) **Seminar** (cr arr). Prereq: perm.

Min **502** (s) **Directed Study** (cr arr). Prereq: perm.

Min **503 Mine Stress Analysis** (3 cr). Application of techniques in experimental stress analysis for structural design in all phases of the engineering system; photoelastic modeling and coating; strain gauge techniques; stress patterns in frameworks, rock masses, and foundations. One lec and two 3-hr labs a wk. Prereq: Engr 350.

Min **504 Rock Mechanics II** (3 cr). Same as GeoE 507. Theories of rupture of elastic and inelastic, brittle materials; mechanisms of fracture propagation and effects in engineering structures and rock fragmentation; effects of nuclear blasting, earthquakes and other dynamic stress waves. Prereq: Min 401 or perm.

Min **506** (s) **Special Topics** (cr arr). Prereq: perm.

Min **509 Solution Mining** (3 cr). See Met J409/J509.

Min **510 Simulation of Engineering Systems** (3 cr). See Min J410/J510.

Min **513 Advanced Mine Ventilation I** (3-5 cr). Thermodynamic and motive column analyses of mine airflow. Students who have taken Min 372 register for 3 cr.

Min **519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Min **520 Mining Geophysics** (3 cr). Same as Geop 521. Theory and application of magnetic, electric, electromagnetic, and radioactive methods of geophysical prospecting for metallic and nonmetallic mineral deposits. Two lec and one 3-hr lab a wk; one 3-day field trip. Prereq: perm. (Alt/yrs)

Min **528 Advanced Topics in Geological Engineering** (3 cr). See GeoE 528.

Min **540 Mine Valuation** (3 cr). Mine examination and valuation; sampling methods and calculations; determining present value of a deposit.

Min **560 Mine Management** (3 cr). Financing, management labor relations, operations, and government regulations. Prereq: perm.

Min **561 Optimization of Engineering Systems** (3 cr). See Min J351/J561.

Min **570 Mine Systems Design** (3-6 cr). Integration and synthesis of equipment, methods, and design; use of latest operation research tools to provide a complete mine plan of operation. Prereq: perm. (Alt/yrs)

Min **597** (s) **Practicum** (cr arr). Prereq: perm.

Min **598** (s) **Internship** (cr arr). Prereq: perm.

Min **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Mining Engineering-Metallurgy

**Francis H. (Sam) Froes, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).**

MnMt **200** (s) **Seminar** (0 cr). Appropriate speakers and unscheduled activities relating to the mineral field. Graded P/F.

MnMt **400** (s) **Seminar** (0 cr). Appropriate speakers and unscheduled activities relating to the mineral field. Graded P/F.

MnMt **600** **Doctoral Research and Dissertation** (cr arr). Prereq: enrollment in the composite doctoral program in mining engineering-metallurgy.

# Music

**James L. Murphy, Director, Lionel Hampton School of Music (205 Music Bldg. 83844-4015; phone 208/885-6231; e-mail music@uidaho.edu).**

**Vertically-related courses in this subject field are:** MusA 145-146-245-246.

## APPLIED PERFORMANCE STUDIES

MusA **114** (s) **Individual Instruction** (1 cr, max arr). For secondary or minor instrument, nonmajors, and undeclared majors; may not be taken for audit. One-half hour of private instruction a wk. Instruction offered in piano, organ, harpsichord, voice, flute, oboe, clarinet, saxophone, bassoon, trumpet, horn, euphonium, trombone, tuba, percussion, violin, viola, cello, contrabass, harp, or guitar. Final exam conducted by jury in some sections. Prereq: audition by committee.

MusA **115** (s) **Individual Instruction** (2 cr, max 4). For music majors who need to correct deficiencies in major instrument area; may not be taken for audit. One hour of private instruction a wk plus convocation/area recital/studio class; final exam conducted by jury. See MusA 114 for instructional areas. Prereq: placement audition by committee.

MusA **J116/J316/J516 Concert Choir--Vandaleers** (1 cr, max arr). Open to all students. Four rehearsals a wk; field trips. Prereq: audition and perm.

MusA **J117/J317/J517** (s) **University Choir** (1 cr, max arr). Open to all students. One 2-1/2 hr night rehearsal a wk. Prereq: perm.

MusA **J118/J318/J518** (s) **Jazz Choir** (1 cr, max arr). Open to all students. Three rehearsals a wk. Prereq: perm.

MusA **J119/J319/J519** (s) **Marching Band** (1-3 cr, max arr). Open to all students. Performance at home football games and other events and travel to selected away football games; field trips. Prereq: perm. (Fall only)

MusA **J121/J321/J521** (s) **Concert Band** (1 cr, max arr). Open to all students. Three rehearsals a wk. Prereq: perm. (Spring only)

MusA **J122/J322/J522** (s) **Orchestra** (1 cr, max arr). Open to all students. Two rehearsals a wk. Prereq: audition and perm.

MusA **124** (s) **Individual Instruction** (2 cr, max arr). For music majors in music degree programs other than performance; may not be taken for audit. One hour of private instruction a wk plus convocation/area recital/studio class; final exam conducted by jury. See MusA 114 for instruction areas. Prereq: placement audition by committee.

MusA **134** (s) **Individual Instruction** (3 cr, max arr). For applied music majors in the B.Mus. performance degree; may not be taken for audit. One hour of private instruction a wk plus convocation/area recital/studio class; final exam conducted by jury. See MusA 114 for instruction areas. Prereq: placement audition by committee.

MusA **145-146/245-246 Piano Class** (1 cr). May not be taken for audit. Four-semester beginning piano sequence. Two lec-labs a wk. Prereq for MusA 145: perm. Prereq for MusA 146: "C" or better in MusA 145 or perm. Prereq for MusA 245: "C" or better in MusA 146. Prereq for MusA 246: "C" or better in MusA 245.

MusA **147-148 Voice Class** (1 cr). May not be taken for audit. Two-semester sequence for beginning singers. Two lec-labs a wk. Prereq for 148: MusA 147 or perm of dept.

MusA **J149-J150/J349-J350 Voice for Actors** (1 cr, max arr). Group voice instruction based on theatre and musical theatre materials. Prereq: audition and perm of dept.

MusA **151-152 Guitar Class for Music Majors** (1 cr). Two lec-labs a wk. May not be taken for audit. Prereq: music major.

MusA **153 Guitar Class for Nonmajors** (2 cr). Group instruction in guitar and basic musicianship. May not be taken for audit.

MusA **200** (s) **Seminar** (cr arr). Prereq: perm.

MusA **203** (s) **Workshop** (cr arr). Prereq: perm.

MusA **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusA **210 Jazz Improvisation** (2 cr). Overview of basic jazz improvisation with an emphasis on style and basic jazz theory.

MusA **245-246 Piano Class** (1 cr). See MusA 145-146/245-246.

MusA **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **314** (s) **Individual Instruction** (1 cr, max arr). See MusA 114 for description. Prereq: perm.

MusA **J315/J515 Accompanying** (1 cr, max arr). Principles of accompanying with use of keyboard instruments; lab assignments under supervision. Two lec-labs a wk. Prereq: audition and completion of semester of MusA 124 or 134.

MusA **316 Concert Choir--Vandaleers** (1 cr, max arr). See MusA J116/J316/J517.

MusA **317** (s) **University Choir** (1 cr, max arr). See MusA J117/J317/J517.

MusA **318** (s) **Jazz Choir** (1 cr, max arr). See MusA J118/J318/J518.

MusA **319** (s) **Marching Band** (1-3 cr, max arr). See MusA J119/J319/J519.

MusA **J320/J520** (s) **Wind Ensemble** (1 cr, max arr). Open to all students. Four rehearsals a wk. Prereq: audition and perm.

MusA **321** (s) **Concert Band** (1 cr, max arr). See MusA J121/J321/J521.

MusA **322** (s) **Orchestra** (1 cr, max arr). See MusA J122/J322/J522.

MusA **J323/J523** (s) **Jazz Ensemble** (1 cr, max arr). Open to all students. Three rehearsals a wk. Prereq: audition and perm.

MusA **324** (s) **Individual Instruction** (2 cr, max arr). See MusA 124 for description; see "Upper-Division Standing" in part 5 for prerequisites.

MusA **334** (s) **Individual Instruction** (3 cr, max arr). See MusA 134 for description; see "Upper-Division Standing" in part 5 for prerequisites.

MusA **349-350 Voice for Actors** (1 cr, max arr). See MusA J149-J150/J349-J350.

MusA **J365/J565** (s) **Chamber Ensemble** (1 cr, max arr). Open to all students. Performance opportunities in chamber ensembles: string, brass, woodwind, percussion, keyboard, vocal, and mixed. Prereq: audition and perm.

MusA **J380/J580** (s) **Opera Workshop** (1-3 cr, max arr). Analysis, rehearsal, and performance of operatic literature. Prereq: audition and perm.

MusA **387 Conducting I** (2 cr). Conducting techniques, score reading, and interpretation of scores for large choral and instrumental ensembles. Prereq: MusC 141. (Fall only)

MusA **400** (s) **Seminar** (cr arr). Prereq: perm.

MusA **403** (s) **Workshop** (cr arr). Prereq: perm.

MusA **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusA **J455/J555 Keyboard Performance Practices** (1 cr). Study of interpretation of keyboard music from Baroque through 20th century; learn to interpret scores, teach, and perform keyboard music stylistically; acquire knowledge of major performing artists and recordings from each period of music. Registration for graduate credit requires additional research into original treatises from each period of music, resulting in the editing of a piece of music from each of these periods.

MusA **487 Conducting II** (2 cr). Prereq: MusA 387 or perm. (Spring only)

MusA **490 Half Recital** (0 cr). For students required to have one-half recital. Graded P/F. Prereq: audition and perm. Coreq: MusA 324 or 334.

MusA **491 Recital** (0 cr). For students required to have a full recital. Graded P/F. Prereq: audition and perm. coreq: MusA 334.

MusA **492 Elective Half Recital** (0 cr). For students who have passed MusA 490 or 491 and wish to do an elective half recital. Graded P/F. Prereq: audition and perm. Coreq: MusA 324 or 334.

MusA **493 Elective Recital** (0 cr). For students who have passed MusA 490 or 491 and wish to do an elective full recital. Graded P/F. Prereq: audition and perm. Coreq: MusA 324 or 334.

MusA **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **500 Master's Research and Thesis** (cr arr).

MusA **501** (s) **Seminar** (cr arr). Prereq: perm.

MusA **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **503** (s) **Workshop** (cr arr). Prereq: perm.

MusA **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusA **514** (s) **Individual Instruction** (1 cr, max arr). See MusA 114 for description.

MusA **515** **Accompanying** (1 cr, max arr). See MusA J315/J515.

MusA **516** **Concert Choir--Vandaleers** (1 cr, max arr). See MusA J116/J316/J516.

MusA **517** (s) **University Choir** (1 cr, max arr). See MusA J117/J317/J517.

MusA **518** (s) **Jazz Choir** (1 cr, max arr). See MusA J118/J318/J518.

MusA **519** (s) **Marching Band** (1-3 cr, max arr). See MusA J119/J319/J519.

MusA **520** (s) **Wind Ensemble** (1 cr, max arr). See MusA J320/J520.

MusA **521** (s) **Concert Band** (1 cr, max arr). See MusA J121/J321/J521.

MusA **522** (s) **Orchestra** (1 cr, max arr). See MusA J122/J322/J522.

MusA **523** (s) **Jazz Ensemble** (1 cr, max arr). See MusA J323/J523.

MusA **524** (s) **Individual Instruction** (2-3 cr, max arr). See MusA 124 for description.

MusA **534** (s) **Individual Instruction** (3-6 cr, max arr). For students in the M.Mus. performance degree; see MusA 134 for description.

MusA **554** **Performance Practices** (2 cr). See MusA J454/J554.

MusA **555** **Keyboard Performance Practices** (1 cr). See MusA J455/J555.

MusA **565** (s) **Chamber Ensemble** (1 cr, max arr). See MusA J365/J565.

MusA **580** (s) **Opera Workshop** (1-3 cr, max arr). See MusA J380/J580.

MusA **590** (s) **Master's Recital** (0 cr). For students whose emphasis is other than performance. May be repeated. Graded P/F. Prereq: audition and perm of committee. Coreq: MusA 524.

MusA **591** (s) **Master's Recital** (0 cr). For students whose emphasis is in performance. May be repeated. Graded P/F. Prereq: audition and perm of committee. Coreq: MusA 534.

MusA **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

## THEORY AND COMPOSITION

MusC **139-140** **Aural Skills I-II** (2 cr). Exercises and drill in sight-singing and ear training. Three lec-labs a wk. Prereq for MusC 139: perm. Prereq for MusC 140: “C” or better in MusC 139. Recommended coreq: MusA 145-146.

MusC **141** **Theory of Music I** (2 cr). Melodic and harmonic materials, part-writing skills, and analysis. Prereq: perm. (Fall only)

MusC **142** **Theory of Music II** (2 cr). Harmonic materials, part-writing skills, and analysis. Prereq: "C" or better in MusC 141 or perm. (Spring only)

MusC **200** (s) **Seminar** (cr arr). Prereq: perm.

MusC **203** (s) **Workshop** (cr arr). Prereq: perm.

MusC **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusC **239-240** **Aural Skills III-IV** (1 cr). Continuation of MusC 140. Two lec-labs a wk. Prereq for MusC 239: "C" or better in MusC 139-140. Recommended coreq: MusA 245-246. Prereq for MusC 240: “C” or better in MusC 239.

MusC **241** **Theory of Music III** (3 cr). Prereq: "C" or better in MusC 142. (Fall only)

MusC **242** **Theory of Music IV** (3 cr). Prereq: "C" or better in MusC 241. (Spring only)

MusC **260** **Introduction to Composition** (1 cr). Fundamentals of musical composition, using short original composition assignments to focus on common techniques used by past and contemporary composers and to develop skill in manuscript and notation. Active participation and performance is emphasized. Prereq or coreq: MusC 241 or perm.

MusC **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **325 Composition** (2 cr, max arr). Creative writing. Prereq: MusC 240 and 242.

MusC **328 Instrumental and Choral Arranging** (3 cr). Principles of instrumentation, transcription, and arranging with emphasis on idiomatic instrumental and choral writing leading to projects in scoring for chamber, band, orchestral, and vocal ensembles. Prereq: "C" or better in MusC 240 and 242.

MusC **329 Theoretical Basis of Jazz** (2 cr). Harmonic, melodic, rhythmic, and stylistic analysis of principal trends. Prereq: MusC 141 or perm.

MusC **331 Counterpoint** (3 cr). Style and technique of polyphonic 16th century vocal music through 18th century instrumental music, with emphasis on two- to three-part writing; motet, canon, invention, and fugue. Prereq: MusC 242 or perm.

MusC **400** (s) **Seminar** (cr arr). Prereq: perm.

MusC **403** (s) **Workshop** (cr arr). Prereq: perm.

MusC **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusC **425 Advanced Composition** (2 cr, max arr). Continuation of MusC 325. Increasing emphasis on varied media and larger forms, but with value being placed on creativity and originality. Prereq: MusC 325 (two semesters)

MusC **426 Electronic Music** (2 cr). Techniques of musical composition using electronic media. Prereq: MusC 242 or perm.

MusC **442 Musical Analysis** (2 cr). Study of traditional forms and analytical techniques. Prereq: MusC 242.

MusC **490 Senior Recital** (0 cr). For students in composition required to have a full recital. Graded P/F. Prereq: audition and perm. Coreq: MusC 425.

MusC **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **500 Master's Research and Thesis** (cr arr).

MusC **501** (s) **Seminar** (cr arr). Prereq: perm.

MusC **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **503** (s) **Workshop** (cr arr). Prereq: perm.

MusC **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusC **507 Individual Instruction: Composition** (cr arr). Prereq: MusC 525 or perm.

MusC **521 Musical Analysis** (3 cr). Analysis of selected musical compositions. Prereq: perm.

MusC **525 Composition** (2 cr, max arr). Creative writing.

MusC **590** (s) **Master's Recital** (0 cr). For students whose degree requires a composition recital as part of the degree requirements. Graded P/F. Prereq: audition and perm of committee. Coreq: MusC 507 or 525.

MusC **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

## HISTORY AND LITERATURE

MusH **101** (s) **Survey of Music** (3 cr) (C). May be used as core credit in *J-3-d*, except by music majors. Not open for cr to majors. Intro to the art and nature of music; emphasis on aural skills, historical styles, musical forms, and the literature of music.

MusH **111 Introduction to Music Literature** (3 cr). Introduction to the study of music literature, including western and world traditions. Emphasis on aural and score analysis, writing, and research techniques. Prereq: MusC 141. (Spring only)

MusH **200** (s) **Seminar** (cr arr). Prereq: perm.

MusH **203** (s) **Workshop** (cr arr). Prereq: perm.

MusH **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusH **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **321 Music in Western Civilization I** (3 cr). Musical culture, styles, and genres from the Middle Ages through 1750. Prereq: "C" or better in MusH 101 or 111. (Fall only)

MusH **322 Music in Western Civilization II** (3 cr). European and American musical culture, styles, and genres from 1750 to World War I. Prereq: "C" or better in MusH 101 or 111. (Spring only)

MusH **323 Music in Western Civilization III** (3 cr). European and American musical cultures, styles, and genres, including jazz, from World War I to the present. Prereq: "C" or better in MusH 101 or 111. (Fall only)

MusH **360 Music of the Americas** (3 cr). A survey of musical styles from South, Central and North America. Includes Tango, Samba, Son, Klezmer, Cajun and others.

MusH **400** (s) **Seminar** (cr arr). Prereq: perm.

MusH **403** (s) **Workshop** (cr arr). Prereq: perm.

MusH **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusH **J410/J510** (s) **Studies in Jazz History** (3 cr). Selected topics in jazz. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J417/J517** (s) **Studies in Baroque Music** (3 cr). Selected topics in Baroque music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J418/J518** (s) **Studies in Classic/Romantic Music** (3 cr). Selected topics in Classic/Romantic music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J419/J519** (s) **Studies in 20th-Century Music** (3 cr). Selected topics in 20th-century music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J440/J540** (s) **Studies in American Music** (3 cr). Selected topics in American music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J451/J551** (s) **Repertoire** (2 cr, max arr). May be repeated for cr as content changes. Historical and analytical survey of literature available in all performing media. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm.

MusH **J452/J552 Vocal Repertoire I** (2 cr). Content will cover the development of solo vocal repertory c. 1600 through the 18th century, centering on the cultures of Italy , France, Germany and England. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm. (Alt/yrs)

MusH **J453/J553 Vocal Repertoire II** (2 cr). Content will cover the development of solo vocal repertory primarily in the 19th and 20th century of Germany, France, Italy, England and the United States, with the development of nationalism included from other countries. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm. (Alt/yrs)

MusH **J454/J554 Keyboard Repertoire I** (2 cr). Content will cover the development of keyboard literature from J.S. Bach through Beethoven. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm. (Alt/Yrs)

MusH **J455/J555 Keyboard Repertoire II** (2 cr). Content will cover the development of keyboard literature from Schubert to present. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm. (Alt/yrs)

MusH **J459/J559** (s) **Studies in Opera Literature** (3 cr). Open to all students. Selected masterworks of opera literature. Additional projects/assignments reqd for grad cr. Prereq: perm. (Alt/yrs)

MusH **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **500 Master's Research and Thesis** (cr arr).

MusH **501** (s) **Seminar** (cr arr). Prereq: perm.

MusH **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **503** (s) **Workshop** (cr arr). Prereq: perm.

MusH **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusH **510** (s) **Studies in Jazz History** (3 cr). See MusH J410/J510.

MusH **517** (s) **Studies in Baroque Music** (3 cr). See MusH J417/J517.

MusH **518** (s) **Studies in Classic/Romantic Music** (3 cr). See MusH J418/J518.

MusH **519** (s) **Studies in 20th-Century Music** (3 cr). See MusH J419/J519.

MusH **540** (s) **Studies in American Music** (3 cr). See MusH J440/J540.

MusH **551** (s) **Repertoire** (2 cr, max arr). See MusH J451/J551.

MusH **552** **Vocal Repertoire I** (2 cr). See MusH J452/J552.

MusH **553** **Vocal Repertoire II** (2 cr). See MusH J453/J553.

MusH **554** **Keyboard Repertoire I** (2 cr). See MusH J454/J554.

MusH **555** **Keyboard Repertoire II** (2 cr). See MusH J455/J555.

MusH **559** (s) **Studies in Opera Literature** (3 cr). See MusH J459/J559.

MusH **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

## MUSIC TEACHING

MusT **200** (s) **Seminar** (cr arr). Prereq: perm.

MusT **203** (s) **Workshop** (cr arr). Prereq: perm.

MusT **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusT **251** **String Instrument Techniques** (1 cr). Group instruction. Problems of playing and teaching stringed instruments in elementary and secondary schools. Prereq: perm.

MusT **253** **Brass Instrument Techniques** (1 cr). Group instruction. Problems of playing and teaching brass instruments in elementary and secondary schools. Prereq: perm.

MusT **254** **Percussion Techniques** (1 cr). Group instruction. Problems of playing and teaching percussion instruments in elementary and secondary schools. Prereq: perm.

MusT **255** **Woodwind Techniques** (1 cr). Group instruction. Problems of playing and teaching clarinet, flute, and saxophone in elementary and secondary schools. Prereq: perm.

MusT **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **352** **Double Reed Techniques** (1 cr). Group instruction. Problems of playing and teaching oboe and bassoon in elementary and secondary schools. Prereq: MusT 255 or perm. (Fall only)

MusT **381** **Elementary School Music Methods for Nonmajors** (3 cr). Same as EDTE 381. Curriculum, organization, and instructional materials for teaching general classroom music. This course is intended for elementary classroom teachers, nonmusic majors. One out-of-class field teaching experience may be scheduled. Prereq: perm.

MusT **382** **Elementary School Music Methods for Music Majors** (3 cr). Curriculum, organization, instructional materials, and strategies for teaching elementary general music. Must be taken before enrolling in MusT 432. Approximately three field teaching experiences must be scheduled in the elementary schools outside of class time. (Fall only)

MusT **383** **Principles of Music Teaching** (3 cr). Students in the School of Music take this course in lieu of ED 468. Philosophy, principles, curriculum, and organization of the school music program. Must be taken before enrolling in MusT 432. Prereq: MusC 142, and upper-division standing in studio or perm.

MusT **385** **Choral Music in the Secondary School** (2 cr). Methods, instructional materials, and techniques for teaching choral music in grades 7-12. Two lec and one lab a wk. Must be taken before enrolling in MusT 432. Prereq: 2 cr in MusA 316 or 317, and MusC 142. Prereq or coreq: MusT 383, MusA 387, or perm.

MusT **386** **Instrumental Music in the Secondary School** (2 cr). Methods, instructional materials, and techniques for teaching instrumental music in grades 7-12. Two lec and one lab a wk. Must be taken before enrolling in MusT 432. Prereq: MusC 142. Prereq or coreq: MusT 383, MusA 387, or perm.

MusT **389** **Orff, Kodaly, and Dalcroze** (2 cr). Philosophies and teaching techniques attributed to Carl Orff, Emile Jacques Dalcroze, and Zoltan Kodaly; Orff emphasizes movement, improvisation, singing, and percussion instruments; Dalcroze emphasizes movement; Kodaly emphasizes solfege singing, folk songs, child development, and personal musicianship. Prereq: MusT/EDTE 381 or MusT 382 or perm.

MusT **400** (s) **Seminar** (cr arr). Prereq: perm.

MusT **403** (s) **Workshop** (cr arr). Prereq: perm.

MusT **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusT **432** (s) **Practicum: Music Teaching** (7 or 14 cr). Supervised music teaching in public schools. Graded P/F. Prereq: ED 301 or 312, ED 302 or 314, MusA 490, successful completion of all required course work, cumulative GPA of 2.50, and perm of School of Music. Coreq: MusT 445. (Submit application via coordinator of music education to the director of clinical experiences in teacher education by December 1 of school yr before enrolling).

MusT **J435/J535** (s) **Pedagogy and Materials** (2 cr, max arr). Methods and materials of performance techniques for each performance field. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm.

MusT **J436/J536 Pedagogy and Materials: Keyboard I** (2 cr). Objectives and goals of teaching the beginning piano student in regards to business aspects, literature and techniques. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm. (Alt/yrs)

MusT **J437/J537 Pedagogy and Materials: Keyboard II** (2 cr). Objectives and goals of teaching the intermediate and early advanced piano student in regards to literature and techniques. Additional projects/assignments reqd for grad cr. Prereq: Jr standing and perm. (Alt/yrs)

MusT **438** (s) **Practicum** (cr arr). Studio and classroom teaching of secondary music majors, minors, or electives. Prereq: perm.

MusT **445 Proseminar in Music Teaching** (2 cr). Coreq: MusT 432.

MusT **465 Jazz Band Rehearsal Techniques** (1 cr). Methods, materials, and literature for jazz bands in public schools. Coreq: MusT 466 and 467.

MusT **466 Marching Band Techniques** (1 cr). Techniques of drilling; materials for field and street maneuvers; preparation of shows. Prereq: MusC 242. Coreq: MusT 465 and 467.

MusT **467 Instrumental Literature for Public Schools** (1 cr). Music and materials suitable for instrumental ensembles in schools. Coreq: MusT 465 and 466.

MusT **485 Choral Ensemble Rehearsal Techniques** (1 cr, max arr). Various techniques of rehearsing singers in an ensemble. Coreq: MusT 385.

MusT **486 Instrumental Ensemble Rehearsal Techniques** (1 cr, max arr). Various techniques of rehearsing string, wind, and percussion players in an ensemble. Coreq: MusT 386.

MusT **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **500 Master's Research and Thesis** (cr arr).

MusT **501** (s) **Seminar** (cr arr). Prereq: perm.

MusT **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **503** (s) **Workshop** (cr arr). Prereq: perm.

MusT **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusT **535** (s) **Pedagogy and Materials** (2 cr, max arr). See MusT J435/J535.

MusT **536 Pedagogy and Materials: Keyboard I** (2 cr). See MusT J436/J536.

MusT **537 Pedagogy and Materials: Keyboard II** (2 cr). See MusT J437/J537.

MusT **538** (s) **Practicum** (cr arr). Studio and classroom teaching of secondary music majors, minors, or electives. Prereq: perm.

MusT **583 School Music Administration** (2 cr). Principles underlying sound policies in the supervision and administration of school music. Prereq: one yr of teaching experience or perm.

MusT **597** (s) **Practicum** (cr arr). Prereq: perm.

MusT **598** (s) **Internship** (cr arr). Prereq: perm.

MusT **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

## GENERAL

MusX **101 Orientation for Music Majors** (0 cr). An orientation to requirements, processes, and opportunities associated with the study of music as a discipline for new students in the School of Music; a foundation for success and survival in the study of music. Graded P/F. Two lec a week for first three weeks.

MusX **140** **Convocation** (0 cr). Required of all music majors for seven semesters and music minors for two semesters (minimum of 10 recitals a semester). Graded P/F.

MusX **200** (s) **Seminar** (cr arr). Prereq: perm.

MusX **203** (s) **Workshop** (cr arr). Prereq: perm.

MusX **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusX **283-284** (s) **Diction for Singers** (2 cr). Two-semester sequence (English/Italian/Latin and Spanish/German/French) in study of language sounds as represented by the International Phonetic Assoc.

MusX **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusX **400** (s) **Seminar** (cr arr). Prereq: perm.

MusX **403** (s) **Workshop** (cr arr). Prereq: perm.

MusX **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusX **498** (s) **Internship** (1-3 cr). Open only to majors in the School of Music. Graded P/F. Prereq: perm of School of Music Director.

MusX **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusX **500** **Master's Research and Thesis** (cr arr).

MusX **501** (s) **Seminar** (cr arr). Prereq: perm.

MusX **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusX **503** (s) **Workshop** (cr arr). Prereq: perm.

MusX **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusX **511** **Bibliography and Research** (3 cr). Orientation to grad study; bibliography and research procedures. Prereq: admission to graduate program or perm.

MusX **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Natural Resources

**Charles R. Hatch, Dean, College of Natural Resources (202C CNR Bldg. 83844-1131; phone 208/885-2397).**

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any student who is on academic probation.

NR **101 Forestry Orientation** (1 cr) (FWR 101). Intro to forestry and related wildland management professions.

NR **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

NR **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

NR **204; 404** (s) **Special Topics** (cr arr). Prereq: perm.

NR **299; 502** (s) **Directed Study** (cr arr). Prereq: perm.

NR **310 Leadership for Natural Resources Management** (1 cr). Principles and practices of leadership; topics include goal setting and reflection, interpersonal communication, group dynamics and cooperation, and basic leadership skills. One 16-hour retreat, six 2-hr class sessions, two oral presentations, and one leadership project that contributes to the College of Natural Resources, the University of Idaho, or the community.

NR **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

NR **402 GIS Applications in Natural Resources** (1 cr). Application of GIS principles to natural resource problems. Topics include GIS/GPS integration, habitat inventory, site suitability studies, risk assessment, sources of spatial data, map accuracy, etc. ArcView software and extensions will be used in hands on exercises. Four hrs/week for six weeks. Prereq: Geog 385 or perm.

NR **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing in the College of Natural Resources, GPA 2.5, and perm.

NR **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

NR **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

NR **504** (s) **Special Topics** (cr arr). Prereq: perm.

NR **505 Advanced GIS Applications in Wildlife Sciences** (1 cr). Advanced wildlife GIS applications focusing on spatial home range computations and habitat studies; accelerated. Prereq: GIS experience or perm.

NR **597** (s) **Practicum** (cr arr). Prereq: perm.

NR **598** (s) **Internship** (cr arr). Prereq: perm.

NR **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

NR **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Naval Science

**Ron C. Plucker, Head, Dept. of Naval Science (101 Navy Bldg. 83844-1122; phone 208/885-6333; http://www.uidaho.edu/~navyrotc).**

NS **ID100 Drill/Lab** (0 cr). WSU N S 100. Reqd of all Navy-Marine Corps OEP students. Two 1-hr labs a wk.

NS **ID101 Introduction to Naval Science** (2 cr). WSU N S 101. Intro to the Navy: customs, structure, basic leadership, career paths, and ships and aircraft of the U.S. Fleet.

NS **ID102 Ships Systems I** (3 cr). WSU N S 102. Intro to Naval shipboard engineering systems; propulsion systems; nuclear, gas turbine, and conventional; auxiliary systems and shipboard damage control; basic concepts in ship design.

NS **200** (s) **Seminar** (cr arr). Prereq: perm.

NS **ID201 Ships Systems II** (3 cr). WSU N S 201. Naval weapons systems; theory and process of detection (radar and sonar), evaluation; weapons; delivery, guidance, and explosives; integration of weapons systems with command, control, and communications systems.

NS **ID202 Seapower and Maritime Affairs** (2 cr). WSU N S 202. Survey of U.S. Naval history; seapower and maritime affairs emphasizing present-day concerns; comparisons of U.S. and foreign Naval strategies.

NS **299** (s) **Directed Study** (cr arr). Prereq: perm.

NS **ID301 Navigation** (3 cr). WSU N S 301. Theory, principles, and procedures of terrestrial and electronic navigation, and "rules of the nautical road."

NS **ID302 Naval Operations** (3 cr). WSU N S 302. Naval operations and tactics, relative motion, and Maneuvering Boards.

NS **ID311 Evolution of Warfare** (3 cr). WSU N S 311. Evolution of war through tactics; strategy from Sun Tzu to J.F.C. Fuller. Recommended preparation: NS 101, 202.

NS **ID401 Naval Organization and Management** (2 cr). WSU N S 401. Theories of management and management resources, motivational theories, and leadership.

NS **ID402 Naval Leadership** (2 cr). WSU N S 402. Ethical leadership and naval administration, emphasizing the U.C.M.J., human resource management, material management, and supply systems. Recommended preparation: NS 401.

NS **ID412 Amphibious Operations** (3 cr). WSU N S 412. Amphibious doctrine from Gallipoli to the Mayaguez. Recommended preparation: NS 311.

NS **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Nuclear Engineering

**Steven G. Penoncello, Director, Program in Nuclear Engineering (125 Janssen Engr. Bldg. 83844-1011; phone 208/885-6479).**

RELATED FIELDS: For other courses offered in the nuclear field, see Chem 513 and 516, Phys 465, 565, 585, 586, and 587.

NE **R120 Fundamental Concepts of Nuclear Engineering** (3 cr). Basic concepts; intro to atomic structure, nuclear reactions, fission process, nuclear reactor fundamentals and types.

NE **R220 Analysis of Nuclear Engineering Systems I** (3 cr). Primarily for technologists. Elementary quantitative analysis, with emphasis on the qualitative aspects of nuclear engineering systems; ore processing, fuel element fabrication, materials selection, shielding, and control. Prereq: NE 120 or perm.

NE **R221 Analysis of Nuclear Engineering Systems II** (3 cr). Primarily for technologists. Continuation of NE R220. Heat removal, reactor design, fuel recycle, and waste disposal. Prereq: NE 220 or perm.

NE **ID&WS360 Nuclear Engineering** (3 cr). WSU M E 461. Atomic and nuclear physics; reactor system physics and heat transfer. Prereq: Engr 335, Math 310.

NE **404** (s) **Special Topics** (cr arr). Prereq: perm.

NE **ID460 Nuclear Reactor Engineering** (3 cr). WSU M E 460. Nuclear reactor design problems in thermodynamics, fluid flow, heat transfer, fuel preparation, waste disposal, and materials selection; disc of reactor types. Prereq: NE 360 or perm.

NE **R470 Nuclear Reactor Safety** (3 cr). Light water reactor safety: evaluation methods, system disturbances, safety criteria, containment, NRC licensing process, and computer codes for nuclear safety analysis; intro to liquid metal safety. Prereq: perm.

NE **R500 Master's Research and Thesis** (cr arr).

NE **R501** (s) **Seminar** (cr arr). Prereq: perm.

NE **502** (s) **Directed Study** (cr arr). Prereq: perm.

NE **R530 Two-Phase Flow** (3 cr). Treatment of fluid mechanics and heat transfer in conjunction with nuclear reactors where two-phase flow problems are found.

NE **R540 Fusion Energy** (3 cr). Basic concepts and experimental approaches to fusion, elementary plasma theory, plasma oscillations, heating; fusion reactor technology development and long range prospects.

NE **R550 Topics in Advanced Nuclear Engineering** (3 cr). Prereq: perm.

NE **R565 Reactor Engineering** (3 cr). Radiation shielding, materials, instrumentation and controls, separation of stable isotopes, chemical separation and processing, special techniques. Prereq: Phys 565 or perm.

NE **R580 Waste Management and Nuclear Fuel Reprocessing** (3 cr). Head-end processing, solvent extraction processes, ion exchange processes, precipitation processes, and effluent disposal.

NE **581 Treatment of Radioactive Waste** (3 cr). Alternative processes and operations for treatment of radioactive wastes before long-term storage. Prereq: Math 310, NE 360 or Phys 587.

# Philosophy

**Kathryn Paxton George, Chair, Dept. of Philosophy (407 Morrill Hall 83844-3016; phone 208/885-7107; http://www.ls.uidaho.edu/Phil).**

Phil **102 Reason and Rhetoric** (2 cr). *May be used as core credit in J-3-a.* Form and style of argumentative discourse; development of critical thinking and rhetorical skills as students prepare and deliver written and oral presentations; construction, evaluation, and presentation of arguments; identification of arguments and fallacies to improve abilities to organize thoughts, express them clearly and simply, and judge the suitability of material for the audience.

Phil **103 Ethics** (3 cr) (C). *May be used as core credit in J-3-d.* Introduction to philosophical reasoning through historical study of Western moral thought.

Phil **201 Critical Thinking** (3 cr). Acquiring and improving important skills of thinking, reading, and writing critically; emphasis on avoiding fallacies and mastering forms of valid argument in ordinary language.

Phil **202 Introduction to Symbolic Logic** (3 cr). Development of systematic techniques for assessing validity of arguments; includes categorical logic, propositional logic, and elementary quantificational logic.

Phil **204** (s) **Special Topics** (cr arr). Prereq: perm.

Phil **240 Belief and Reality** (3 cr). Introduction to epistemology (examination of grounds and limits of knowledge) and metaphysics (inquiry into the nature of reality) through historical and contemporary readings.

Phil **ID&WS250 Introduction to Philosophy of Science** (3 cr). WSU Phil 350. Introduction to the critical analysis of the aims and methods of science, its principles, practices, and achievements. Prereq: 3 cr of philosophy or 3 cr of natural science.

Phil **252 Biomedical Ethics** (3 cr). Ethical questions in the health professions and medical research, with emphasis on current dilemmas faced by physicians, nurses, medical technologists, and dentists; case analysis in context of modern ethical theory.

Phil **302 Biblical Judaism: Texts and Thought** (3 cr). Same as RelS 302. Analysis of the Hebrew Bible (Old Testament) and related texts with an emphasis on hermeneutics and thought.

Phil **303 Early Christianity: Texts and Thought** (3 cr). Same as RelS 303. Analysis of the New Testament and other early Christian texts of the first and second centuries C.E. with an emphasis on hermeneutics and thought.

Phil **305 Philosophy of Religion** (3 cr). Same as RelS 305. Philosophical investigation of such issues as the existence and attributes of God, problems of free will and evil, afterlife, miracles, and creation.

Phil **306 Hindu Thought** (3 cr). Same as RelS 306. Analysis of the Vedas, the Upanishads, the Bhagavad-gita, Jainism, and later Hindu thought.

Phil **307 Buddhism** (3 cr). Same as RelS 307. Philosophy and religion of Gautama Buddha as it developed in India, Tibet, China, and Japan.

Phil **308 Confucianism and Taoism** (3 cr). Same as RelS 308. Analysis of writings of Lao-tzu, Confucius, Mencius, Chuang-tzu, and medieval Confucianism.

Phil **ID&WS309 History of Ancient Philosophy** (3 cr) (C). WSU Phil 290. Philosophical thought from the early Greeks through the Middle Ages; concentration on metaphysics and theory of knowledge.

Phil **ID&WS310 History of Modern Philosophy** (3 cr) (C). WSU Phil 305. Critical evaluation of the thought of major figures in early modern philosophy, such as Descartes, Leibniz, Spinoza, Locke, Berkeley, Hume, and Kant; emphasis on metaphysics and epistemology.

Phil **315 Existentialism** (3 cr). Analysis of the writings of such figures as Kierkegaard, Nietzsche, Dostoyevsky, Hesse, Kafka, Buber, Camus, and Sartre.

Phil **330 Contemporary Moral Problems** (3 cr). Philosophical case analysis in areas of current concern such as racism and sexism, sexual morality, professional responsibility, abortion, welfare of animals, and right to die.

Phil **ID&WS340 Metaphysics** (3 cr). WSU Phil 340. Classical and contemporary readings on such items as realism versus nominalism, free will and determinism, the nature of causality, the existence of God, personal identity, modality.

Phil **ID350 Philosophy of Biology** (3 cr). WSU Phil 418. Classical and current conceptual issues in the foundations and aims of biology, and the role of values and social concerns as they affect and interact with biological science, research, and technology. Recommended prereq: one college course in biological science.

Phil **WS402 Seminar in Symbolic Logic** (3 cr). WSU Phil 401. (Alt/yrs)

Phil **404** (s) **Special Topics** (cr arr). Prereq: perm.

Phil **415 Phenomenology** (3 cr). Survey of philosophy of Husserl, Heidegger, Merleau-Ponty, Sartre, and others in the phenomenological tradition.

Phil **416 Twentieth Century Analytic Philosophy** (3 cr). Examination of the thought of major figures in 20th century analytic philosophy, such as Moore, Russell, Frege, Wittgenstein, and Quine; evaluation of major movements such as logical positivism and "ordinary language" philosophy.

Phil WS420 Contemporary Continental Philosophy (3 cr). WSU Phil 420.

Phil **421 Philosophy of the Arts** (3 cr). Chief conceptions of the nature of the arts and their interpretation.

Phil **425 Feminism and Philosophy** (3 cr). Analysis of schools of feminist theory and impact of feminism on philosophy and other disciplines.

Phil **ID&WS430 Social and Political Philosophy** (3 cr). WSU Phil 445. Examination of basic issues of social justice and political organization, including theory of the state, liberty, equality, justification of rights, justice theory, and distributive justice.

Phil **ID&WS433 Ethical Theory** (3 cr). WSU Phil 460. Critical analysis of classical consequentialist and deontic views as well as one or more recent theories such as emotivism and prescriptivism, feminist ethics, communitarianism, or virtue ethics. Prereq: Phil 103.

Phil **ID434 Philosophy of Law** (3 cr). WSU Phil 470. Analysis of fundamental philosophical issues in law and legal systems, including the nature of law, relation of law to morality, judicial method, and nature and ascription of rights.

Phil **436 Philosophy of War and Peace** (3 cr). Philosophical analysis of violent and nonviolent methods of political conflict resolution; may include just war theory, limited war theory, terrorism, institutionalized procedures for resolving political conflict, and pacifism.

Phil **ID&WS440 Theory of Knowledge** (3 cr). WSU Phil 335. Analysis of the nature of knowledge; survey of various philosophical positions on the sources and extent of what we know.

Phil **ID&WS442 Philosophy of Mind** (3 cr). WSU Phil 450. Survey of current philosophical theories of the nature of minds and mental states, including forms of dualism, reductive physicalism, functionalism, and eliminative materialism.

Phil **ID&WS443 Philosophy of Language** (3 cr). WSU Phil 410. Philosophical thinking about meaning, reference, and truth.

Phil **450 Ethics and Reasoning in Scientific Research and Practice** (3 cr). Principles of reasoning in experimental design and research, understanding and evaluating theoretical, statistical, and causal hypotheses; evaluating decisions based on scientific research; the role of values in scientific research; ethical issues involving fraud and deception, human experimentation, animal research, genetic engineering, biotechnology, and/or other areas. Prereq: Phil 103 or 201 or 202 or 240, or perm.

Phil **452 Environmental Philosophy** (3 cr). Same as EnvS 552; students in EnvS 552 have additional projects/assignments reqd for grad cr. Philosophical examination of various ethical, metaphysical, and legal issues concerning humans, nature, and the environment; issues covered may include biodiversity and species protection, animal rights, radical ecology, environmental racism, wilderness theory, population control, and property rights.

Phil **490 Senior Seminar** (3 cr). Required of all philosophy majors; capstone course devoted to mastery of the philosophical essay; topics will vary. Prereq: senior standing or completion of 24 credits in philosophy.

Phil **495** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Prereq: perm.

Phil **496 Teaching Methods in Philosophy** (2 cr, max 4). Graded P/F. Learn methods of teaching while assisting in an introductory-level philosophy course. Prereq: four upper-division courses in philosophy, the introductory course in which the student will participate, and perm of dept.

Phil **499** (s) **Directed Study** (cr arr). Prereq: perm.

# Physical Education

**Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).**

## ACTIVITY COURSES

Note: PEB 105, 106, 107, and 108 may be repeated for cr if the student engages in a different activity or level of the same activity. Practical tests may be given at the beginning of the semester to determine the student's level of ability.

PEB **105** (s) **Dance** (1 cr, max arr). See Dan 105.

PEB **106** (s) **Individual and Dual Sports** (1 cr, max arr). Bowling, racket sports, fencing, golf, gymnastics, conditioning, backpacking, cycling, cross-country skiing, etc. Two days of field trips may be a part of the course requirements for such activities as backpacking, cycling, etc. Two hrs a wk. Graded P/F.

PEB **107** (s) **Team Sports** (1 cr, max arr). Field sports, volleyball, basketball, and softball. Two hrs a wk. Graded P/F.

PEB **108** (s) **Swimming** (1 cr, max arr). All levels of proficiency, including WSI, lifeguarding, diving, and scuba. Two hrs a wk. Graded P/F.

## PROFESSIONAL COURSES

PEP **100 Introduction to Sport Sciences** (1 cr). Introduction to career opportunities within the field of sport science; topics on professional development, advising issues, and guest lectures from professionals practicing in related fields.

PEP **101 Introduction to Athletic Training** (1 cr). Introduction to career opportunities within the field of athletic training; topics on professional duties and activities performed by an athletic trainer, advising issues, and guest lectures.

PEP **107 Movement Fundamentals** (1 cr). Skill development and teaching knowledge of the fundamentals and concepts of movement. Two lec-labs a wk.

PEP **132 Skill and Analysis of Tennis, Pickleball, and Badminton** (1 cr) (PEP 113, 117). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in tennis, pickleball, and badminton. Two lec-labs a wk.

PEP **133 Skill and Analysis of Golf and Archery** (1 cr) (PEP 112, 115). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in golf and archery. Two lec-labs a wk.

PEP **134 Skill and Analysis of Track and Field** (1 cr) (PEP 118). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in track and field. Two lec-labs a wk.

PEP **135 Skill and Analysis of Basketball and Volleyball** (1 cr) (PEP 114, 119). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in basketball and volleyball. Two lec-labs a wk.

PEP **136 Skill and Analysis of Soccer and Speedball** (1 cr) (PEP 116). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in soccer and speedball. Two lec-labs a wk.

PEP **137 Skill and Analysis of Softball and Field Sports** (1 cr) (PEP 122, 123). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in softball and field sports. Two lec-labs a wk.

PEP **138 Skill and Analysis of Outdoor Activities I** (1 cr) (PEP 124). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in orienteering, hiking, camping, biking, and blading. Two lec-labs a wk; two to three field trips and one overnight stay. Prereq: PE major or minor or perm.

PEP **139 Skill and Analysis of Outdoor Activities II** (1 cr) (PEP 125). Skill development and knowledge of teaching progressions, techniques, strategies, and analysis and correction of skills in cross-country skiing, ropes and wall climbing, and fishing. Two lec-labs a wk; three field trips and one overnight stay. Prereq: PE major or minor or perm.

PEP **161 Introduction to Physical Education** (1 cr) (PEP 160). Introduction to the field of physical education teaching and coaching, professional and portfolio development, and national and state standards.

PEP **200** (s) **Seminar** (cr arr). Prereq: perm.

PEP **201 Fitness Activities and Concepts** (2 cr). Topics related to individual fitness development; focus on development of personal skills in presenting and teaching fitness activities for public and private sector programs. Two lec and 1 hr of lab a wk.

PEP **202 Skill and Analysis: Stunts and Tumbling** (1 cr). Skill analysis, skill development, spotting, and teaching techniques in tumbling. Two lec-labs a wk.

PEP **203** (s) **Workshop** (cr arr). Prereq: perm.

PEP **204** (s) **Special Topics** (cr arr). Prereq: perm.

PEP **220 Coaching Youth Sports** (1 cr). Practical, hands-on introduction to basics of youth sports coaching; basics of developing appropriate coaching philosophy; how such sports sciences as sport psychology, sport pedagogy, sport physiology, sport medicine, sport law, and sport management help to effectively implement athlete-centered approach to coaching; students participate in six-week practicum and receive feedback on how to improve their coaching. Two lec a wk.

PEP **243 Recreation Activities** (2 cr). See Rec 243.

PEP **244 Lifeguarding** (2 cr). Trains individuals to lifeguard at swimming pools and nonsurf, open water beaches; Standard First Aid and CPR Certification reqd to receive Red Cross Lifeguarding Certification. One field trip. Prereq: intermediate swimming or perm.

PEP **250 Elementary Physical and Health Education** (3 cr). Content, methods, and materials in elementary school physical education and health for classroom teachers. Four hrs of lec-lab a wk.

PEP **WS261 Human Anatomy** (4 cr). WSU MvtSt 262.

PEP **266 Aquatic Instructor's Course** (2 cr). Methods. Students passing Red Cross standards will receive instructor's certificate. Prereq: certificate in lifeguarding or emergency water safety and pass swimming skills pre-test.

PEP **J275/J475 Moral Reasoning in Sport** (2 cr). Current ethical issues in sport, such as performance-enhancing drugs, mechanization, cheating, eligibility; challenges students to creatively examine their beliefs. Additional projects/assignments reqd for cr in PEP 475.

PEP **WS290 Sport Program** (3 cr). WSU SpMgt 290.

PEP **299** (s) **Directed Study** (cr arr). Prereq: perm.

PEP **300 Applied Human Anatomy and Biomechanics** (2 cr). This course is designed to provide the student with the anatomical and biomechanical knowledge essential to conduct a systematic qualitative analysis of human movement in clinical, educational, performance, and wellness settings. Three hrs of lec-lab a wk. Prereq: Biol 120.

PEP **305 Applied Sports Psychology** (3 cr). Overview of key psychological issues in physical education and sport including competition, personality, anxiety, motivation, self-confidence, imagery, and stress management; practical applications of psychological concepts of youth sports and development of key psychological skills for competition.

PEP **310 Cultural and Philosophical Aspects of Sport** (2 cr). Analysis of philosophical and sociological phenomenon in sport.

PEP **WS311 Strength Training** (3 cr). WSU Ath T 311.

PEP **322 Skills and Analysis of Individual Activities** (2 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of a variety of individual sports and activities. Three hrs of lec/labs a wk.

PEP **323 Skills and Analysis of Team Activities** (2 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of a variety of team sports and activities. Three hrs of lec/labs a wk.

PEP **350 Elementary Health and Physical Education** (2 cr). Specific methods, research, curricula, and media in teaching elementary health and physical education. Coreq: courses in the math/science/physical education block.

PEP **360 Motor Development and Control** (3 cr). Overview of structural and environmental influences on development of motor behavior and control throughout the lifespan. Four hrs of lec-lab a wk. Prereq or coreq: Biol 120.

PEP **380 Measurement and Evaluation** (2 cr). Construction, evaluation, and interpretation of tests used in evaluating physical and cognitive performance in physical education and sport science settings; basic statistical analysis. Accelerated class; three hrs of lec-lab a wk.

PEP **400** (s) **Seminar** (cr arr). Prereq: perm.

PEP **403** (s) **Workshop** (cr arr). Prereq: perm.

PEP **404** (s) **Special Topics** (cr arr). Prereq: perm.

PEP **J405/J505** (s) **Professional Development** (cr arr). Cr earned may not be applied toward grad degree programs but may be accepted for fifth-yr certification. Professional development in physical education and sport professional personnel. Additional projects/assignments reqd for grad cr.

PEP **410 Elementary Physical Education Methods** (3 cr). Current theory in curriculum and teaching methods with practical applications in lab and field experience. Four hrs of lec-lab a wk. Sixteen hours over an eight-week period will be required in the schools. Prereq: PEP 360 or perm.

PEP **WS411 Advanced Strength Training** (3 cr). WSU Ath T 411.

PEP **412 Elementary Physical Education Methods** (2 cr). Study and application of teaching methods and teaching behavior; structuring learning outcomes through performance objectives and lesson and unit planning. Includes a 16-hr required practicum at the elementary level. Prereq: acceptance into pedagogy sequence.

PEP **J414/J514 Proseminar in Physical Education** (1 cr). Course content and materials designed to prepare students for entry into the physical education teaching internship, the physical education teaching profession, and for continuing professional development; should be taken the semester before the teaching internship. Additional items including grant writing, writing for publication, and research review on professional and career development will be required for those registered for graduate credit.

PEP **J417/J517 Advanced Human Biomechanics** (3 cr). This course is designed to provide the student with an in-depth understanding of the fundamental aspects of biomechanical analyses, including kinematic, kinetic, energetic, and neuromuscular considerations. The student will become familiar with quantitative analysis procedures used to analyze human movement activities in clinical, educational, performance, and wellness settings. Independent quantitative research project reqd for grad cr. Prereq: Math 143, Phys 111, and PEP 300.

PEP **418 Physiology of Exercise** (3 cr). Effects of physical activity on the circulatory, respiratory, and other systems. Two lec and one 2-hr lab a wk. Prereq: Biol 120 and 121.

PEP **420 Secondary Physical Education Methods** (4 cr). Study and application of teaching methods and teaching behavior; structuring learning outcomes through performance objectives; lesson and unit planning. Includes extensive school-based study and application opportunities. Prereq: Four professional activity series courses; prereq or coreq: PEP 360.

PEP **421 Secondary Physical Education Methods** (2 cr). Study and application of teaching methods and teaching behavior; structuring learning outcomes through performance objectives and lesson and unit planning. Includes a 16-hr required practicum at the secondary level. Prereq: acceptance into pedagogy sequence.

PEP **424 Physical Education for Special Populations** (2 cr). Adapting physical education programs to meet individual needs. Lec and lab. Prereq: PEP 360.

PEP **431 Practicum: Elementary and Secondary Student Teaching** (7 or 14 cr). Cr earned in this course may not be applied to total cr needed for a PE teaching major. Supervised student teaching at elementary and secondary levels. Double majors select the 7-cr option; all other students select 14 cr divided between elementary and secondary level. Graded P/F. Prereq: admission to teacher education, PEP 410, 420, ED 302, cumulative GPA of 2.5, and perm of dept. (Submit application to director of clinical experiences in the College of Education by December 1 of school year before enrolling.)

PEP **432 Elementary Curriculum and Administration** (2 cr). Developing and administering elementary physical education curricula and implementing pedagogical skills during the internship. Two lec and 1 hr of lab a wk. Coreq: PEP 484.

PEP **433 Secondary Curriculum and Administration** (2 cr). Developing and administering secondary physical education curricula and implementing pedagogical skills during the internship. Two lec and 1 hr of lab a wk. Coreq: PEP 484.

PEP **434 Professional Physical Education Role and Development** (2 cr). Professional role development during the internship, into the physical education teaching profession, and for continuing professional development. Two lec and 1 hr of lab a wk. Coreq: PEP 484.

PEP **440 Physical Education and Sport Management** (3 cr). Curriculum, programming, organization, and administration of school physical education and intramurals; field experience. Prereq: PEP 420 or perm.

PEP **450 Elementary Health and Physical Education in the Schools** (1 cr). Implementation of methods, research, curricula, and media in health and physical education. One lec and two labs a wk. Prereq: PEP 350; coreq: EDTE 484.

PEP **455 Design & Analysis of Research in HPERD** (3 cr). Same as H&S 455 and Rec 455. This course is designed to survey the basic types of research methods often found in health, physical education, sport science, and recreation. A variety of research designs and computerized statistical analyses are studied to help students understand the systematic nature of problem solving. Various research problems as they relate to health, physical education, recreation, and human performance are discussed for the purpose of identifying the broad and diverse nature of research in the movement, leisure, and health professions. Prereq: Jr or Sr standing.

PEP **460 Competition and Social Values** (3 cr). Competition as it is presently perceived in America today; what it should be and could be in the ethical domain.

PEP **J467/J567 Recreational Therapy for People with Developmental Disabilities** (3 cr). See Rec J467/J567.

PEP **470 Sport and Athletic Business Ethics** (3 cr). Study of ethics, values, and capitalism as it focuses on global question of sport and athletics in America.

PEP **475 Moral Reasoning in Sport** (2 cr). See PEP J275/J475.

PEP **480 Seminar in Sportsmanship: Moral Development** (3 cr). Philosophic and psychological study of moral development and resultant effect on moral value education in sport.

PEP **484** (s) **Internship in Physical Education Teaching** (1-14 cr, max 28). Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Two-semester sequence. Prereq: ED 302 and division approval; coreq: integrated course work including ED 401, PEP 432, 433, and 434.

PEP **J493/ID-J593 Fitness Assessment and Prescription** (3 cr). WSU Kin 568. Development of skills in exercise testing, data interpretation, and prescription for health related fitness. Cr earned in PEP 593 by completion of additional projects/assignments. Two lec and 2 hrs of lab a wk. Prereq: PEP 418 or perm.

PEP **495** (s) **Practicum in Tutoring** (1 cr, max arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

PEP **497 Athletic Program Management** (3 cr). Scheduling, facilities, equipment, maintenance, budgeting, and public relations in the school.

PEP **498** (s) **Internship in Physical Education** (cr arr). Supervised field work. Prereq: jr standing and Rec 445.

PEP **499** (s) **Directed Study** (cr arr). Prereq: perm.

PEP **500 Master's Research and Thesis** (cr arr).

PEP **501** (s) **Seminar** (cr arr). Prereq: perm.

PEP **502** (s) **Directed Study** (cr arr). Prereq: perm.

PEP **503** (s) **Workshop** (cr arr). Prereq: perm.

PEP **504** (s) **Special Topics** (cr arr). Prereq: perm.

PEP **505 Professional Development** (cr arr). See PEP J405/J505.

PEP **506 Foundations of Motor Skills** (3 cr). Application of psychological, kinesiological, and mechanical principles for an understanding of motor activity.

PEP **508 Motor Development** (3 cr). Study of changes in human movement associated with aging across the lifespan. Two lec and 2 hrs of lab a wk.

PEP **WS511 Theories, Research, and Techniques in Counseling Psychology I** (3-4 cr). WSU CoPsy 511.

PEP **WS512 Theories, Research, and Techniques in Counseling Psychology II** (4 cr). WSU CoPsy 512.

PEP **514 Proseminar in Physical Education** (1 cr). See PEP J414/J514.

PEP **WS515 Ethics and Professional Problems in Counseling Psychology** (4 cr). WSU CoPsy 515.

PEP **517 Advanced Human Biomechanics** (3 cr) See PEP J417/J517.

PEP **518 Advanced Physiology of Exercise** (3 cr). Principles and methods essential to the experimental approach to physiological performance problems. Two lec and one lab a wk.

PEP **519 Biomechanics of Sport** (3 cr). Quantitative study of human movement examining internal and external forces acting on the body and the resultant limitations to motor behavior.

PEP **520 History of Physical Education and Sport** (3 cr). Cultural, philosophical, and comparative study of physical education and sport throughout civilization; emphasis on background influences on U.S. program.

PEP **WS521 Theoretical Foundations of Group Counseling** (3 cr). WSU CoPsy 518. History, philosophy, and theoretical foundations; the group counselor, members, and issues in group counseling. Prereq: PEP 512 .

PEP **ID&WS522 Pedagogy Applied to Health, Physical Education, Recreation, and Dance** (3 cr). WSU Kin 582. Provides theoretical and practical skills in the study and analysis of the teaching and learning process in health, physical education, recreation, and dance.

PEP **WS525 Counseling Diverse Populations** (3 cr). WSU CoPsy 525. Research and theories regarding the influence of culture, gender, and lifestyle on counseling processes; application of appropriate assessment/treatment strategies.. Prereq: PEP 512.

PEP **WS527 Individual Appraisal I** (3 or 4 cr). WSU CoPsy 527. Theoretical background and practical skills needed to administer, score, and interpret individual intelligence and structured personality tests; integration of nontest data. Prereq: EdAd 507 and perm.

PEP **WS541 Clinical and Experimental Hypnosis Seminar** (4 cr). WSU CoPsy 541. Clinical and experimental hypnosis, emphasizing applied research and clinical methods. Prereq: PhD student in counseling, educational experimental, or clinical psychology.

PEP **WS542 Cross-Cultural Research in Counseling and Assessment** (4 cr). WSU CoPsy 542. Cross-cultural research methods, concepts, and findings in counseling and assessment.

PEP **ID&WS544 Program Development** (3 cr). WSU Kin 585. Developing programs associated with physical education and sport science using current conceptual frameworks and models. Field-testing of programs may be required.

PEP **550 Sport in Society** (3 cr). Sociological aspects of sport with emphasis on cultural impact of sport on society and vice versa; economics and politics of sports as they apply in American society.

PEP **WS551 Assessment and Evaluation of Motor Dysfunction** (3 cr). WSU Kin 551. Principles of assessment/evaluation of motor dysfunction; tools and techniques; administration, interpretation, and translation into program plans.

PEP **WS552 Neurological Impairment and Motor Behavior** (3 cr). WSU Kin 552. Neurophysiological components of normal and abnormal motor behavior as a result of neurological impairments/dysfunction in children through the aged.

PEP **WS553 Programming in Adapted Physical Activity** (3 cr). WSU Kin 553. Intensive experiences in planning and implementing physical activity programs to include disabled individuals in urban, rural, integrated, and segregated settings.

PEP **WS554 Sport and Individuals with Disabilities** (3 cr). WSU Kin 554. Issues and opportunities in sport for individuals with disabilities.

PEP **WS555 Doctoral Practicum in Counseling Psychology I** (4 cr). WSU CoPsy 551. Supervised experiences in the application of counseling psychology theory and techniques. Graded P/F. Prereq: PEP 512, 515.

PEP **WS556 Doctoral Practicum in Counseling Psychology II** (4 cr). WSU CoPsy 552. Supervised experiences in the application of counseling psychology theory and techniques. Graded P/F. Prereq: PEP 555.

PEP **560 Sport Psychology** (3 cr). Provides an understanding of how psychological factors influence performance and how simple and easy-to-use mental training techniques may be employed to enhance performance and enjoyment; using the *Coaches' Guide to Sport Psychology* and accompanying workbook, teachers/coaches will address such important psychological topics as peak performance, motivation, communication, leadership, self-confidence, concentration, stress management, imagery, goal setting, arousal control, and mental plans/performance routines; workbook exercises, case studies, and hands-on projects will teach mental training principles and help practitioners develop skills that they can successfully use to enhance performance with their students/athletes.

PEP **561 Motivation in Sport and Recreation** (3 cr). Practical, hands-on course designed to teach basics of motivation to physical educators, coaches, and recreation professionals; major achievement motivation theories and primary antecedents and consequences of motivated behavior; five major motivational enhancement strategies including goal setting, personal science, competition, feedback, and reinforcement; guidelines for maximizing effectiveness; analysis of applied motivation questions such as dropouts/burnouts, peak performance, exercise adherence, injury rehabilitation, increasing enjoyment, designing reward systems, and positive parental involvement.

PEP **WS562 Advanced Psychotherapy** (3 cr). WSU CoPsy 562.

PEP **WS564 Mechanical Analysis of Motor Activity** (3 cr). WSU Kin 564.

PEP **WS565 Advanced Educational Statistics** (3 cr). WSU EdPsy 565. Applications of inferential statistics in educational research and evaluation. Prereq: EdAd 507.

PEP **WS566 Biomechanics** (3 cr). WSU Kin 566.

PEP **567 Therapeutic Recreation for People with Developmental Disabilities** (3 cr). See Rec J467/J567.

PEP **570 Ethics in Physical Education and Sport** (3 cr). Problem solving approach to current ethical problems in leisure, physical education, and sport.

PEP **581 Research in Physical Activity, Theory, and Design** (1-6 cr, max 6). Principles of scientific inquiry; application to the study of physical activity; individual research projects.

PEP **583 Qualitative Research Methods** (3 cr). Qualitative research methods including the way data are collected, methods for assuring quality of data, techniques for organizing results, conclusions and interpretations. Two lec and 2 hrs of lab a wk.

PEP **WS584 Teaching Strategies** (3 cr). WSU Kin 583.

PEP **591 Philosophical Influences in Sport** (3 cr). Use of the philosophical process in analyzing problems and issues in leisure and sport.

PEP **WS592 Motor Learning** (3 cr). WSU Kin 591.

PEP **ID593 Fitness Assessment and Prescription** (3 cr). See PEP J493/J593.

PEP **597** (s) **Practicum** (cr arr). Application of theories and techniques. Graded P/F. Prereq: perm.

PEP **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

PEP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

PEP **600 Doctoral Research and Dissertation** (cr arr).

# Physics

**Rex Gandy, Chair, Dept. of Physics (311A Engineering/Physics Bldg. 83844-0903; phone 208/885-6380.**

CREDIT LIMITATIONS: Phys 100 carries no credit after 111 or 211; Phys 111 carries no credit after 211; 112 carries no credit after 212.

Phys **100 Fundamentals of Physics** (4 cr). For students in nontechnical fields. *May be used as core credit in J-3-b.* Conceptual study of laws of nature and their application, including mechanics, heat, electricity and magnetism, light, and modern physics. Three lec and one 2-hr lab a wk.

Phys **103 General Astronomy** (3 cr). *May be used as core credit in J-3-b.* Nonmathematical descriptive and physical astronomy; development of astronomical thought; properties and evolution of the solar system, stars, galaxies, and the universe.

Phys **104 Astronomy Lab** (1 cr). *May be used as core credit in J-3-b.* Naked eye, telescopic, and photographic observations of constellations, stars, and planets. One 2-hr lab a wk; some evening meetings. Prereq or coreq: Phys 103.

Phys **111 General Physics I** (4 cr) (C). *May be used as core credit in J-3-b.* Kinematics, dynamics, and forces. Three lec, one recitation, and one 2-hr lab a wk. Prereq: Math 143.

Phys **112 General Physics II** (4 cr) (C) *May be used as core credit in J-3-b.* Sound, electricity, magnetism, light, and modern physics. Three lec, one recitation, and one 2-hr lab a wk. Prereq: Phys 111.

Phys **200** (s) **Physics Seminar** (1 cr, max 8). Introductory-level discussion of topics in modern physics; introduction to physics research topics and scientific information search techniques; written and/or oral reports of a pertinent topic in current physics.

Phys **211 Engineering Physics I** (4 cr; 5 cr Idaho Falls). *May be used as core credit in J-3-b.* Kinematics and dynamics, Newton's laws, work and energy, rotational dynamics, linear and angular momentum, collisions, static equilibrium, oscillations, gravity and central forces; 5-cr course also includes fluid dynamics, waves in elastic media, sound waves. Three lec, one recitation, and one 2-hr lab a wk (5-cr course available only in Idaho Falls: four lec and one 2-hr lab a wk). Prereq or coreq: Math 170.

Phys **212 Engineering Physics II** (4 cr; 5 cr Idaho Falls). *May be used as core credit in J-3-b.* Electric fields and potentials, magnetic fields, capacitance and inductance, DC and AC circuits, electromagnetic waves; 5-cr course also includes temperature, heat and thermodynamics, kinetic theory, geometric and physical optics. Three lec, one recitation, and one 2-hr lab a wk (5-cr course available only in Idaho Falls: four lec and one 2-hr lab a wk). Prereq: Phys 211; prereq or coreq: Math 175.

Phys **213 Engineering Physics III** (4 cr). Fluid dynamics, waves in elastic media, sound waves, temperature, heat and thermodynamics, kinetic theory, geometric and physical optics. Three lec, one recitation, and one 2-hr lab a wk. Prereq: Phys 211; prereq or coreq: Math 175.

Phys **301 Junior Physics Lab** (1 cr). Experimental techniques in modern physics, including optics, atomic, nuclear, and solid state physics; computer uses, error analysis, literature searches. One 3-hr lab a wk. Prereq: Phys 213 or perm.

Phys **305 Modern Physics** (3 cr). Quantum and relativity theories with applications to atomic, solid state, nuclear, and elementary particle physics. Prereq: Phys 212, 213; coreq; Math 275.

Phys **321-322 Analytical Mechanics (**3 cr). Statics; kinematics and dynamics of a particle; systems of particles; rigid continuous media; intro to Lagrange's equations. Prereq: Phys 112 or 212 or 213, and Math 275.

Phys **341-342 Electromagnetic Fields I-II** (3 cr). Theory using vector calculus; electrostatics; magnetostatics, electromagnetism, analysis of AC and DC circuits; Maxwell's equations; radiation and propagation of electromagnetic waves. Prereq: Phys 112 or 212 or 213, and Math 275.

Phys **351 Introductory Quantum Mechanics I** (3 cr). One-dimensional theory; free particle, bound states, potential barriers, harmonic oscillator, matrix methods, and Dirac notation; interpretations of quantum theory. Prereq: Phys 305, 371.

Phys **352 Introductory Quantum Mechanics II** (3 cr). Three-dimensional theory; angular momentum, motion in central potential, identical particles and spin, perturbation theory and variational methods. Prereq: Phys 351.

Phys **ID371 Mathematical Physics** (3 cr). WSU Phys 371. Same as Math 371. Mathematical techniques needed in upper-division physics courses, including vector analysis, matrices, Sturm-Liouville problems, special functions, partial differential equations, complex variables. Prereq: Phys 212, Math 275.

Phys **400** (s) **Seminar** (cr arr). Prereq: perm.

Phys **403** (s) **Workshop** (cr arr). Prereq: perm.

Phys **404** (s) **Special Topics** (cr arr). Prereq: perm.

Phys **411-412 Physical Instrumentation I-II** (3 cr). Methods and instruments used in experimental physics; electronic techniques; design problems in electronic measurement of physical quantities encountered in research. Two lec and one 3-hr lab a wk. Prereq: Phys 212 or 213 and Math 275 for Phys 411; Phys 411 for 412.

Phys **ID-J425/J525 Relativity** (3 cr). WSU Phys 425. Introduction to the Special and General Theories of Relativity. Principle of relativity, Poincare and Lorentz transformations and their consequences. Four-dimensional formulation of relativistic mechanics and electromagnetism. Principle of equivalence and the geometric theory of gravitation. Prereq: Phys 305 and sr standing.

Phys **ID-J428/J528 Computational Physics** (3 cr). WSU Phys 428. Numerical techniques for differentiation, quadrature, and integration of differential equations. Matrix operations. Monte Carlo methods. Applications to physical problems. Prereq: Phys 305.

Phys **431 Thermodynamics and Kinetic Theory** (3 cr). Laws of thermodynamics, kinetic theory, and their application to topics in physics. Coreq: Phys 305.

Phys **443 Optics** (3 cr). Geometrical optics and photometry, interference, diffraction, double refraction, and polarization; application to modern optical instruments. Prereq: Phys 212 or 213, Math 175, and sr standing or perm.

Phys **444 Quantum Optics** (3 cr). Theory and application of lasers, optical spectrum analyzers, electro-optic modulators, and detectors; modern optical concepts and techniques; Gaussian beams and optical resonators, interaction of radiation and quantized matter, nonlinear optical effects, and laser spectroscopy. Prereq: Phys 212 or 213, Math 175, and sr standing or perm.

Phys **ID&WS463 Introduction to Solid State** (3 cr). WSU Phys 463. Physics of bulk matter; structure and types of solids, elastic and thermal properties of solids, electric and magnetic properties of solids, theory of conduction in metals and semiconductors. Prereq: Phys 305, 321.

Phys **ID&WS465 Nuclear and Particle Physics** (3 cr). WSU Phys 465. Structure of elementary particles, quark models; nuclear liquid drop, Fermi gas, shell and collective models; symmetries and cons laws; E and M, weak and strong interactions; accelerators and detectors. Prereq: Phys 305.

Phys **ID&WS485 Astrophysics** (3 cr). WSU Astr 435. Structure and evolution of stars and star systems; celestial mechanics; special and general relativity; cosmology. Prereq: Phys 103, 305, Math 275, or perm.

Phys **490 Research** (1-6 cr, max 6). Undergrad thesis. Prereq: jr standing in physics and perm of dept.

Phys **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Phys **499** (s) **Directed Study** (cr arr). Prereq: perm.

Phys **500 Master's Research and Thesis** (cr arr).

Phys **501** (s) **Seminar** (cr arr). Graded P/F. Prereq: perm.

Phys **502** (s) **Directed Study** (cr arr). Prereq: perm.

Phys **503** (s) **Workshop** (cr arr). Prereq: perm.

Phys **504** (s) **Special Topics** (cr arr). Prereq: perm.

Phys **511-512 Techniques of Experimental Physics** (3 cr). Development of experimental techniques and skills in active research fields; foundation for any field of physics. Nine hrs of lab a wk.

Phys **ID&WS521 Advanced Mechanics** (3 cr). WSU Phys 521. Classical mechanics; Lagrange's and Hamilton's principles, two-body problem, rigid body motion, special relativity, canonical transformation, Hamilton-Jacobi theory, small oscillations, and Lagrangian and Hamiltonian formulations for continuous systems and fields. Prereq: Phys 322.

Phys **525 Relativity** (3 cr). See Phys ID-J425/J525.

Phys **528 Computational Physics** (3 cr). See Phys ID-J428/J528.

Phys **ID&WS533 Thermal and Statistical Physics I** (3 cr) (Phys 531). WSU Phys 533. Thermodynamic laws and potentials, kinetic theory, hydrodynamics and transport coefficients, introductions to statistical mechanics, ensembles, partition functions.

Phys **ID&WS534 Thermal and Statistical Physics II** (3 cr). Phase transitions and critical phenomena, Ginzburg-Landau theory, Bose-Einstein condensation, superfluids, Fermi systems, low-temperature expansions. Prereq: Phys 533 or perm.

Phys **ID&WS541-ID&WS542 Electromagnetic Theory** (3 cr). WSU Phys 541-542. Includes Maxwell's equations, electrostatics, magnetostatics, currents and their interactions, general theory of emission, propagation and absorption of electromagnetic waves, boundary value problems, relativistic formulation of electrodynamics. Prereq: Phys 322, 342.

Phys **ID&WS550, ID&WS551, ID&WS552 Quantum Mechanics** (3 cr) (Phys 551, 552, 553. WSU Phys 550, 551, 552. Phys 550-551: physical basis; Schroedinger wave formulation, Heisenberg matrix formulation, transformation theory, approximation methods, radiation theory, theory of scattering; application to atomic systems. Phys 552: relativistic quantum mechanics, second quantization field theory and application. Prereq: Phys 305, Phys 322 for Phys 550-551; Phys 551 for Phys 552.

Phys **ID&WS563 Solid State Physics** (3 cr). WSU Phys 563. Same as MSE 563. Modern theory of metals, semiconductors, and insulators; crystal structure, thermal, electric, and magnetic properties of solids, band theory of solids, crystal imperfections, semiconductors, superconductivity, and photoconductivity. Prereq: Phys 342; prereq or coreq: Phys 551.

Phys **ID&WS565 Nuclear Physics** (3 cr) (Phys 566). WSU Phys 565. Nuclei and nuclear interactions from a theoretical and experimental viewpoint, properties of nuclei, two-body problems, complex nuclei, nuclear spectroscopy, nuclear reactions, interaction of nuclei with radiation, nuclear models, theory of nuclear forces; topics in high energy physics; nucleus-nucleus collisions. Prereq: Phys 465, and 351 or 551.

Phys **ID&WS571-572 Mathematical Methods of Physics** (3 cr). WSU Phys 571. Methods and problems. Prereq: Phys 322 or perm.

Phys **ID573 Group Theory and Its Applications in Physics** (3 cr). WSU Phys 573. Intro to group theory with application to atoms, molecules, solids, elementary particles and nuclei. Prereq: Phys 551 or perm.

Phys **R585-R586 Fundamental Reactor Kinetics** (3 cr). Complex plane transformations, transfer functions for various systems, derivation of reactor kinetics equations; analysis of nuclear feedback systems; statistical control theory applied to nuclear systems. Prereq: perm.

Phys **R587 Reactor Physics for Engineers** (3 cr). Review of nuclear physics, nuclear fission, chain reaction, and reactor theory. Prereq: Math 310 or equivalent.

Phys **600 Doctoral Research and Dissertation** (cr arr).

# Plant Science

**Jeffrey C. Stark, Division Chair, Plant Science (242 Iddings Wing, Ag. Sc. Bldg 83844-2339; phone 208/529-8376; jstark@uidaho.edu).**

PlSc **102 The Science of Plants in Agriculture** (3 cr). Principles of structure, biology, and management of agronomic and horticultural crops; interaction of crop plants and cropping systems with environment; current issues related to plant science. Two lec and one 2-hr lab a wk.

PlSc **202 Plant Propagation** (3 cr). Sexual and asexual propagation techniques of herbaceous and woody ornamental plants; propagation methods covered including seed, cuttings, layering, grafting, and cloning/tissue culture. Two lec and one 3-hr lab a wk. Prereq: PlSc 102 or Biol 112, or perm. (Alt/yrs)

PlSc **210 Plant Diseases** (1-3 cr, max 3). May not be used for major credit by majors in plant science. Introduction to plant diseases and plant pathology for general audiences on and off campus; emphasis on the cause, development, diagnosis, and control of common diseases of field crop, garden, and woodlot plants.

PlSc **212 Master Gardener** (1-3 cr, max 3). Basic horticultural skills required for home gardeners and landscapers, including soil, water, and fertility management, composting, pest and disease identification and management, vegetable and fruit culture, ornamentals, plant propagation, and lawn care. Graded P/F. Field trips.

PlSc **WS301 Turfgrass Culture** (3 cr). WSU CropS 301.

PlSc **WS310 Pomology** (3 cr). WSU Hort 310. Relationships between physiological processes in fruit trees and management decisions necessary for successful commercial production. One 2-day field trip. (Alt/yrs)

PlSc **WS311 Pomology Laboratory** (1 cr). WSU Hort 311. Cultural practices and management of deciduous treefruit production.

PlSc **WS313 Viticulture and Small Fruits** (3 cr). WSU Hort 313.

PlSc **WS320 Olericulture--Commercial Vegetable Crops** (3 cr). WSU Hort 320.

PlSc **WS321 Olericulture Lab--Commercial Vegetable Crops** (1 cr). WSU Hort 321.

PlSc **WS334 Controlled Environments for Horticultural Production** (3 cr) (PlSc WS234). WSU Hort 334.

PlSc **338 Weed Control** (3 cr). Nature and scope of weed problems, identification and biology of weeds, principles, theory, and practice of mechanical, chemical, and biological control of weeds; legal considerations; integration of methods into functional management systems. Two lec and one 2-hr lab a wk. Prereq: PlSc 102 or equivalent, or perm.

PlSc **ID340 Nursery Management** (3 cr). WSU Hort 340. Management of commercial nurseries from plant propagation through sale of the plants. (Alt/yrs)

PlSc **ID341 Nursery Management Laboratory** (1 cr). WSU Hort 341. Lab study relevant to PlSc 340. Experiments on and demonstrations of different practices used in nurseries. One 2-hr lab a wk; one 1-day field trip. Coreq: PlSc 340.

PlSc **WS360 World Agricultural Systems** (3 cr). WSU CropS and SoilS 360. Study of agro-environmental characteristics of world agriculture; historical and contemporary features of world food production. Prereq: 2 semesters physical or biological sciences.

PlSc **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

PlSc **399** (s) **Directed Study** (1-2 cr, max 2). Prereq: perm.

PlSc **400** (s) **Seminar** (1 cr). Prereq: perm.

PlSc **401 Crop Physiology** (3 cr). Application of physiology to crop management. Prereq: Biol 311. (Alt/yrs)

PlSc **404** (s) **Special Topics** (cr arr). Prereq: perm.

PlSc **405 Plant Pathology** (3 cr). Biology of diseases and disorders of crop, forest, and ornamental plants, with emphasis on plant-microbe interactions and on disease cause, development, diagnosis, and control. Two 1-hr lec and one 2-hr lab a wk. Prereq: PlSc 102 or Biol 203, and MMBB 250 (or perm).

PlSc **407 Field Crop Production** (3 cr). Management and use of crops in Idaho and the Northwest.

PlSc **408 Cereal Science** (3 cr). Crop history and biology of major cereal crops, emphasizing cool season cereals. Prereq: Biol 112 or perm.

PlSc **409 Scientific Photography and Data Presentation** (1 cr). Principles and techniques for photographic documentation and presentation of data; seven technique areas: field photography, aquarium photography, museum photography, photocopy, microphotography, insect photography, and computer graphics. Prereq: Own or have access to a 35mm SLR camera. (Alt/yrs)

PlSc **ID-J410/ID-J510 Biology of Weeds** (3 cr). WSU CropS 413/513. Biology, ecology, and physiology of weeds with emphasis on crop and weed interactions. Requirements for grad cr include comprehensive term paper and class presentation on weed-crop interaction. Two lec and one 3-hr lab a wk. Prereq: Biol 311 or perm. (Alt/yrs)

PlSc **WS-J412/WS-J512 Advanced Cropping Systems** (3 cr). WSU CropS and Pl P 403/503. Modern cropping systems: concepts of crop health management within a cropping systems context; diagnosis and management of biotic and abiotic constraints to crop production; interactions of these constraints; concepts of biological control; integration of biological, physical, and chemical approaches to pests and disease control: role of technological innovations; impact of national and international statutes; agreements and treaties on sustainable growth of crop production. Additional projects/assignments reqd for grad cr.

PlSc **WS-J418/WS-J518 Post-Harvest Biology and Technology** (3 cr). WSU Hort 418/518.

PlSc **WS-J420/WS-J570 Potato Physiology and Production Technology** (2 cr). WSU Hort 420/520. (Alt/yrs)

PlSc **WS-J421/WS-J521 General Mycology** (4 cr). WSU Pl P 421/521. (Alt/yrs)

PlSc **WS-J422/WS-J522 Genetic and Molecular Aspects of Plant Reproduction** (2-3 cr). WSU Hort 405/505. (Alt/yrs)

PlSc **WS-J430/WS-J530 Ornamental Plant Production I** (3 cr). WSU Hort 438/538. Fall and winter production practices of greenhouse and nursery crops. Field trip.

PlSc **WS-J431/WS-J531 Ornamental Plant Production II** (3 cr). WSU Hort 439/539. Production requirements for spring greenhouse and nursery crop; garden center management considerations. Field trip.

PlSc **ID-J433/ID&WS-J533 Plant Tissue Culture Techniques** (3 cr). WSU Hort/CropS 533. Laboratory-oriented course involving tissue culture techniques with an emphasis on regenerating herbaceous and woody plant species from organs or tissues. Requirements for grad cr include completion of a special project and report. One lec and 5 hrs of lab a wk. Prereq: Biol 311 and PlSc 202, or perm. (Alt/yrs)

PlSc **438 Pesticides in the Environment** (3 cr). See Soil 438.

PlSc **J446/ID-J546 Plant Breeding** (3 cr). WSU CropS 546. Application of genetic principles to improvement of crop plants. Grad students reqd to complete additional term paper. Prereq: Gene 314 or equiv. (Alt/yrs)

PlSc **464 Landscape Maintenance** (3 cr). Use and culture of landscape plants to enhance the environment. Two lec and one 2-hr lab a wk; one 1-day field trip. Prereq: PlSc 102 or Biol 213 or perm. Prereq or coreq: Soil 205 and LArc 288, or perm. (Alt/yrs)

PlSc **WS469 Seed Production** (3 cr). WSU CropS/Hort 469. Crops indigenous to the Northwest; seedhouse operations and seed regulation. Prereq: perm. (Alt/yrs)

PlSc **480 Field Trip** (1 cr, max 2). Three-day field trip to production areas. Prereq: perm.

PlSc **ID-J490/ID-J590 Potato Science** (1-3 cr, max 3). WSU Hort 490/590. History, botanical characteristics, seed physiology and production, plant population, physiology of growth, and pest management; factors influencing maturation, harvest, yield, grade, bruise control, storage, and quality maintenance; economics of production and research on a global basis. Requirements for grad cr include comprehensive term paper and class presentation on selected topic.

PlSc **499** (s) **Directed Study** (cr arr). Prereq: perm.

PlSc **500 Master's Research and Thesis** (cr arr).

PlSc **501** (s) **Seminar** (cr arr). Prereq: perm.

PlSc **502** (s) **Directed Study** (cr arr). Prereq: perm.

PlSc **504** (s) **Special Topics** (cr arr). Prereq: perm.

PlSc **WS506 Diseases of Plants** (4 cr). WSU Pl P 551.

PlSc **WS507 Plant Transmission Genetics** (3 cr). WSU CropS 504.

PlSc **WS508 Advanced Crop Physiology I** (3 cr). WSU CropS 508. (Alt/yrs)

PlSc **ID510 Biology of Weeds** (3 cr). See PlSc J410/J510.

PlSc **WS511 Viruses and Virus Diseases of Plants** (4 cr). WSU Pl P 511. (Alt/yrs)

PlSc **WS512 Advanced Cropping Systems** (3 cr). See PlSc J412/J512.

PlSc **WS514 Phytobacteriology** (4 cr). WSU Pl P 514. (Alt/yrs)

PlSc **WS515 Molecular Approaches for Improving Crop Quality and Adaptation** (3 cr). WSU CropS 505. (Alt/yrs)

PlSc **WS518 Post-Harvest Biology and Technology** (3 cr). See PlSc J418/J518.

PlSc **ID520 Plant Cytogenetic Techniques** (3 cr). WSU CropS 520. Techniques to study plant genes and chromosomes. Two lec and 4 hrs of lab a wk. Prereq: Gene 314 or equivalent. (Alt/yrs)

PlSc **WS521 General Mycology** (4 cr). See PlSc J421/J521.

PlSc **WS522 Genetic and Molecular Aspects of Plant Reproduction** (2-3 cr). See PlSc J422/J522.

PlSc **WS526 Advanced Fungal Biology** (4 cr). WSU Pl P 526.

PlSc **WS530 Ornamental Plant Production I** (3 cr). See PlSc J430/J530.

PlSc **WS531 Ornamental Plant Production II** (3 cr). See PlSc J431/J531.

PlSc **ID&WS533 Plant Tissue Culture Techniques** (3 cr). See PlSc J433/J533.

PlSc **WS535 Molecular Genetics of Plant and Pathogen Interactions** (2 cr). WSU Pl P 535. (Alt/yrs)

PlSc **ID&WS539 Herbicide Fate and Mode of Action** (4 cr). WSU CropS 539. Fate of herbicides in plants, soil, and water; physiological and biochemical mode of herbicide action; mechanisms of herbicide resistance. Prereq: PlSc 338, Biol 311, and MMBB 300 or 380, or perm. (Alt/yrs)

PlSc **ID546 Plant Breeding** (3 cr). See PlSc J446/J546.

PlSc **ID547 Biometrics for Plant Scientists** (3 cr). WSU CropS 547. Use of biometrical techniques in research with particular emphasis on designing, analyzing, and interpreting agricultural and biological experiments; application of statistical methods to biological experiments and problems that may be encountered when applying these techniques to biological systems. Prereq: PlSc 102 and Stat 401 or equiv. (Alt/yrs)

PlSc **WS557 Herbicides: Toxicology and Mode of Action** (1 cr). WSU CropS and Ent 557. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and insect physiology. (Alt/yrs)

PlSc **WS558 Pesticide Topics** (1 cr). WSU Entom 558. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and plant, insect, or animal physiology. (Alt/yrs)

PlSc **WS570 Potato Physiology and Production Technology** (2 cr). See PlSc J420/J570.

PlSc **WS571 Plant Molecular Genetics** (3 cr). WSU GenCB 570. (Alt/yrs)

PlSc **590 Potato Science** (3 cr). See PlSc J490/J590.

PlSc **WS592** (s) **Advanced Topics in Cell Biology** (1-3 cr, max 7). WSU GenCB 592.

PlSc **597** (s) **Practicum** (cr arr). Prereq: perm.

PlSc **598** (s) **Internship** (cr arr). Prereq: perm.

PlSc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

PlSc **600 Doctoral Research and Dissertation** (cr arr).

# Political Science

**Donald W. Crowley, Chair, Dept. of Political Science and Public Affairs Research (205 Admin. Bldg. 83844-3165; phone 208/885-6328).**

PREREQUISITES: Two-semester courses in this field may be taken in either order. Students may enroll in second-semester courses without having had the first.

PolS **101 Introduction to Political Science and American Government** (3 cr) (C). *May be used as core credit in J-3-e.* Introduction to the study of politics focusing on basic concepts, processes, and institutions; emphasis on government and politics of the U.S. examined in comparative perspective; probable topics include nature of constitutional democracy, ideology, parties and elections, and formation of public policy.

PolS **C102 U.S. Government: Policies and Issues** (3 cr). Survey of major policies and issues conflicts in the U.S.

PolS **C152 Politics and Pollution** (1 cr). Political, government, and administrative aspects of overcoming air, water, and other types of pollution of our environment.

PolS **200** (s) **Seminar** (cr arr). Prereq: perm.

PolS **203** (s) **Workshop** (cr arr). Prereq: perm.

PolS **204** (s) **Special Topics** (cr arr). Prereq: perm.

PolS **205 Introduction to Comparative Politics** (3 cr). Basic structures, patterns, and sociocultural environment of foreign political systems; includes case studies of the government and politics in selected countries.

PolS **235 Political Research Methods and Approaches** (3 cr)). Introduction to the study of politics, including scope of the discipline, principal fields, research design, and methods of political research and analysis.

PolS **237 International Politics** (3 cr). Survey of approaches used to describe and explain conflict and cooperation among states in the international system; special emphasis on games of strategic interaction.

PolS **275 American State and Local Government** (3 cr) (C). American state and local politics from a comparative perspective; focus on parties, interest groups, voting behavior, legislative and executive government, judiciary, intergovernmental relations, and public policies.

PolS **299** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

PolS **304** (s) **Special Topics** (3 cr, max arr). Prereq: perm.

PolS **380 Canadian Political System** (3 cr). General examination of Canadian cultural identity, constitutional principles, federalism, govt structure, political process, and electoral behavior.

PolS **381 Western European Politics** (3 cr). Examination of political processes in Western European parliamentary systems; topics include parties and elections, coalition formation and dissolution, public policy, and the dynamics of the European Union..

PolS **383 Middle Eastern Politics** (3 cr) (PolS J483/J583). Comparative analyses of political processes in Middle East and North Africa, Islam and politics, role of the military, and Arab-Israeli conflict.

PolS **400** (s) **Seminar** (cr arr). Prereq: perm.

PolS **403** (s) **Workshop** (cr arr). Prereq: perm.

PolS **404** (s) **Special Topics** (cr arr). Prereq: perm.

PolS **J425/J525 History of Political Philosophy I** (3 cr). Perennial problems of politics examined through study of seminal authors of classical antiquity (Plato, Aristotle, Cicero); medieval confrontation of theology with classical political philosophy (Augustine, Aquinas, Marsilius). Additional projects/assignments reqd for grad cr.

PolS **J426/J526 History of Political Philosophy II** (3 cr). Foundations and development of modern liberalism; analysis of its characteristic goals, and democratic, socialist, and communitarian critics of the project; study of authors including Hobbes, Locke, Rousseau, Marx, and contemporary theorists such as Rawls. Additional projects/assignments reqd for grad cr.

PolS **J428/J528 American Political Thought** (3 cr). Major themes and debates in the American search for political self-understanding; topics include representative democracy, religion and politics, the frontier and its legacy, and individualism vs. communitarian claims; study of original sources--Founding Fathers, Thoreau, Lincoln, Populists--and contemporary implications. Additional projects/assignments reqd for grad cr.

PolS **J429/J529 Contemporary Political Ethics** (3 cr). Current controversies concerning status and substance of ethical claims about deception, violence, coercion, and economic justice in politics and public action. Additional projects/assignments reqd for grad cr.

PolS **430 Political Participation Internship** (1-9 cr, max 9). Directed student internship as a participant-observer in the political process, work during a campaign with a candidate, party, or interest group. Graded P/F. Prereq: perm.

PolS **431 American Political Parties and Elections** (3 cr). Development and present character of American political parties and of electoral system, functions of parties in periods of relative consensus and of critical choice regarding fundamental principles, party reform, and future prospects for party system.

PolS **432 American Congress** (3 cr). Roles and functions of Congress in the American political system, theories of representation, recruitment of legislators, Congressional organization and behavior, power structure, relationship to the executive, courts, interest groups, and public.

PolS **433 American Political Culture** (3 cr). Relation of public opinion and political action and affiliation to broad economic, social, religious, and intellectual developments.

PolS **J437/J537 American Presidency** (3 cr). Roles, power, and functions of the presidency; relationships with other structures and institutions in the U.S. political system. Additional projects/assignments reqd for grad cr.

PolS **J438/J538 Conduct of American Foreign Policy** (3 cr). Analysis of how key decision makers, such as the President and Congress, convert inputs from the international, national, and societal systems into foreign policy outputs. Additional projects/assignments reqd for grad cr.

PolS **J439/J539 Public Policy** (3 cr). Processes by which domestic policies are formulated and administered; analysis of intentional and unintentional impact of these policies on society. Additional projects/assignments reqd for grad cr.

PolS **J440/J540** (s) **International Organizations and International Law** (3 cr). Same as Mrtn 496. League of Nations, United Nations, and role of international law in international relations; the UN's contribution to international security and economic and social development. Additional projects/assignments reqd for grad cr.

PolS **444 Investigating International Relations** (3 cr). Topics range from investigations into national uses of violence, homicide, and drug use across nation states, the containment of international diseases, international poverty, population growth rates, economic development, etc.; emphasis on theory development, appropriate research techniques, and techniques for drawing appropriate conclusions and policy recommendations.

PolS **J449/J549 World Politics and War** (3 cr). A critical analysis of several competing theories that explain why wars occur; some focus on the attempts to control and eliminate warfare as a tool of international diplomacy. Additional projects/assignments reqd for grad cr. Cr not granted for both PolS J449/J549 and Mrtn 490.

PolS **451 Public Administration** (3 cr) (C). Environment of public administration, politics of organizations, public decision-making, public relations, leadership, personnel administration, financial administration, administration ethics; related topics.

PolS **J452/ID-J552 Administrative Law and Regulation** (3 cr). WSU Pol S 552. Legal and judicial constraints on administration action, rule-making, adjudication, and other modes of administrative action. Additional projects/assignments reqd for grad cr.

PolS **J453/J553 Public Management Techniques** (3 cr). Emphasizes management styles and the empirical basis for decision; focus on conflict management through control or participatory strategies, and the acquisition and analysis of management information. Additional projects/assignments reqd for grad cr.

PolS **J454/J554 Public Organization Theory** (3 cr). Organization theory and behavior in public and nonprofit sector, organization structure and environment, individual behavior in organizations. Additional projects/assignments reqd for grad cr.

PolS **458 Management Internship** (1-9 cr, max 9). Directed internship in an agency of federal, state, or local government or special projects involving federal, state, or local government. One cr for each week of internship work. Graded P/F. Prereq: perm.

PolS **459 Legislative Internship** (1-9 cr, max 9). Directed internship in a national, state, municipal, or corporate legislative body. Supervised work experience. Report required. Graded P/F. Prereq: perm.

PolS **460 Law and Society** (3 cr). Overview of legal reasoning and functions of law in society; emphasis on capacity of law to affect social change as well as ways in which law responds to social change.

PolS **461 Western Environmental Legal History** (3 cr). Examination of the role of the environment in history; focus on the West, its resources and the role of the law; content will vary depending on interests of instructor and students.

PolS **J462/J562 Natural Resource Policy** (3 cr). Political and institutional context for making natural resource policy; emphasis on interaction between private and public sectors and the federal, state, and tribal governments, including an examination of topical issues in natural resource politics. Additional projects/assignments reqd for grad cr.

PolS **J464/J564 Politics of the Environment** (3 cr). Political factors that influence formation, implementation, and impact of public policies aimed at protecting the environment. Additional projects/assignments reqd for grad cr.

PolS **465 Politics and the Economy** (3 cr). Analysis of factors that influence political institutions in making economic policy.

PolS **J467/J567 Constitutional Law** (3 cr). The Supreme Court as a constitutional policymaker; federal jurisdiction; constitutional principles concerning judicial review, federalism, implied powers, separation of powers, and due process. Additional projects/assignments reqd for grad cr.

PolS **J468/J568 Civil Liberties** (3 cr). The Supreme Court and its role in protecting civil liberties; freedom of speech, press, and religion; due process, the Bill of Rights, and its application to the states; criminal justice. Additional projects/assignments reqd for grad cr.

PolS **J469/J569 The Judicial Process** (3 cr). Judicial and legal processes, court structure, procedures; judicial behavior and decision-making; selection of judges. Additional projects/assignments reqd for grad cr.

PolS **J471/J571 Intergovernmental Relations** (3 cr). Analysis of fiscal and administrative interdependencies among governmental units in the U.S., with an emphasis on public policies. Additional projects/assignments reqd for grad cr.

PolS **J472/J572 Local Government Politics and Administration** (3 cr). Politics, structure, and problems of American cities and other local governments; focus on the urban political economy, the fiscal and social challenges, and the links between public and private sectors; changing social and political functions of American cities and metropolitan fragmentation. Additional projects/assignments reqd for grad cr.

PolS **J480/J580 Politics of Development** (3 cr). Role of the state in development, political economy of change, transition to democracy in the Third World, problems of ethnic conflict, overpopulation, and poverty. Additional projects/assignments reqd for grad cr.

PolS **J482/J582 Latin American Politics** (3 cr). Comparative description and analysis of distinctive Latin American political institutions and processes; cultural influences; basic institutions; dependency and development; authoritarianism and democratization; international dimensions. Additional projects/assignments reqd for grad cr.

PolS **J484/J584 Politics of India and the Subcontinent** (3 cr). Comparative analysis of the political process in India, Pakistan, Bangladesh, Sri Lanka, and Nepal; historical development; cultural and social influences on politics; political institutions and behavior. Additional projects/assignments reqd for grad cr.

PolS **J485/J585 African Politics** (3 cr). Comparative description and analysis of politics of Africa south of the Sahara, colonialism, nationalism, and economic problems; politics of selected African countries examined including South Africa and apartheid. Additional projects/assignments reqd for grad cr.

PolS **J487/J587 Political Violence and Revolution** (3 cr). Survey of the dominant theories attempting to understand the conditions under which humans rebel against their government; from political demonstrations and riots to terrorism to revolution; special emphasis given to the revolutions in Iran and Vietnam. Additional projects/assignments reqd for grad cr.

PolS **495 Senior Seminar in Political Science** (3 cr). Capstone seminar required of all political science majors in their senior year. Focuses on developing and applying research and conceptual skills, oral and written presentation of research prospectus and final research paper. Prereq: PolS 235 and senior standing.

PolS **499** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

PolS **500 Master's Research and Thesis** (cr arr). Graded P/F.

PolS **501** (s) **Seminar** (cr arr). Areas normally offered incl U.S. politics, U.S. foreign policy, African and Asian politics, community power and politics, U.S. political thought, public law, public administration, and political development. One 2-day field trip is authorized for the seminar in public administration. Prereq: perm.

PolS **502** (s) **Directed Study** (cr arr). Prereq: perm.

PolS **503** (s) **Workshop** (cr arr). Prereq: perm.

PolS **504** (s) **Special Topics** (cr arr). Prereq: perm.

PolS **525 History of Political Philosophy I** (3 cr). See PolS J425/J525.

PolS **526 History of Political Philosophy II** (3 cr). See PolS J426/J526.

PolS **528 American Political Thought** (3 cr). See PolS J428/J528.

PolS **529 Contemporary Political Ethics** (3 cr). See PolS J429/J529.

PolS **WS530 Scope of Political Science** (3 cr). WSU Pol S 501.

PolS **537 American Presidency** (3 cr). See PolS J437/J537.

PolS **538 Conduct of American Foreign Policy** (3 cr). See PolS J438/J538.

PolS **539 Public Policy** (3 cr). See PolS J439/J539.

PolS **540 International Organizations and International Law** (3 cr). See PolS J440/J540.

PolS **549 World Politics and War** (3 cr). See PolS J449/J549.

PolS **551 Seminar in Public Administration** (3 cr). Review of significant issues and methodological problems in the field.

PolS **ID552 Administrative Law and Regulation** (3 cr). See PolS J452/ID-J552.

PolS **553 Public Management Techniques** (3 cr). See PolS J453/J553.

PolS **554 Public Organization Theory** (3 cr). See PolS J454/J554.

PolS **555 Seminar in Administrative Theory** (3 cr). Major writers in administrative theory and concepts such as leadership, supervision, authority, decision-making, and human relations. (Alt/yrs)

PolS **ID556 Governmental Policy and Program Analysis** (3 cr). WSU Pol S 515. Techniques used to analyze policy alternatives and to evaluate program; developing program objectives, management by objectives, productivity analysis, program evaluation, and policy analysis.

PolS **557 Governmental Budgeting** (3 cr). Theory and practice of budgeting in a political environment; focus on potentials and limitations of various budgeting systems, particular viz the federal experience.

PolS **562 Natural Resource Policy** (3 cr). See PolS J462/J562.

PolS **564 Politics of the Environment** (3 cr). See PolS J464/J564.

PolS **567 Constitutional Law** (3 cr). See PolS J467/J567.

PolS **568 Civil Liberties** (3 cr). See PolS J468/J568.

PolS **569 The Judicial Process** (3 cr). See PolS J469/J569.

PolS **571 Intergovernmental Relations** (3 cr). See PolS J471/J571.

PolS **572 Local Government Politics and Administration** (3 cr). See PolS J472/J572.

PolS **575 Public Personnel Administration** (3 cr). Personnel administration in public agencies; history of the personnel and merit systems; recruitment; selection, training, and evaluation of administrators; collective bargaining and political activity in public service; personnel administration and democracy.

PolS **580 Politics of Development** (3 cr). See PolS J480/J580.

PolS **582 Latin American Politics** (3 cr). See PolS J482/J582.

PolS **584 Politics of India and the Subcontinent** (3 cr). See PolS J484/J584.

PolS **585 African Politics** (3 cr). See PolS J485/J585.

PolS **587 Political Violence and Revolution** (3 cr). See PolS J487/J587.

PolS **598** (s) **Internship** (cr arr). Prereq: perm.

PolS **600 Doctoral Research and Dissertation** (cr arr). Graded P/F.

# Professional-Technical Education

**James A. Gregson, Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).**

MAJORS: Professional-technical education majors fulfill their major requirements from the courses listed in this section.

RELATED FIELDS: For those course offerings in professional-technical education, see agricultural education, counseling, and family and consumer sciences.

PTE **200** (s) **Seminar** (cr arr). Prereq: perm.

PTE **203** (s) **Workshop** (cr arr). Prereq: perm.

PTE **204** (s) **Special Topics** (cr arr). Prereq: perm.

PTE **270 Technical Competence I** (1-10 cr, max 10). Technical competence is gained from experience in areas of concentration related to the bachelor of science degree in professional-technical education or technology. Grades for successful completion of PTE/ITED 270, 370, and 470 will be transcripted as P (pass) normally during the student's last semester and completion of all degree requirements. Prereq: 9 cr in residence in professional-technical education.

PTE **299** (s) **Directed Study** (cr arr). Prereq: perm.

PTE **306 Preservice for New Professional-Technical Teachers** (3 cr). Fundamental skills necessary for new teachers in secondary and postsecondary schools to be successful in meeting students.

PTE **307 Inservice for New Professional-Technical Teachers** (3 cr). Resolution of common problems faced by new teachers through seminars and observations/evaluations/perceptions by UI preceptor; course meets state certification requirements for 30 hrs of inservice for vocational specialist certification. Prereq: perm.

PTE **J351/J551 Principles and Philosophy of Professional-Technical Education** (3 cr) (C). See ACTE J351/J551.

PTE **370 Technical Competence II** (1-10 cr, max 10). See PTE 270. Prereq: completion of junior year in professional-technical education.

PTE **400** (s) **Seminar** (cr arr). Prereq: perm.

PTE **403** (s) **Workshop** (cr arr). Prereq: perm.

PTE **404** (s) **Special Topics** (cr arr). Prereq: perm.

PTE **J405/J505 Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Professional development and enrichment. Additional projects/assignments reqd for grad cr.

PTE **J415/J515 Instructional Strategies and Learning Styles** (3 cr). Same as ACTE J415/J515 and AdEd J415/J514. Design and application of teaching strategies for learning domains and learning styles appropriate for adult learners. Additional projects and assignments reqd for grad cr.

PTE **J418/J518 Learning Styles** (3 cr). See ACTE J418/J518.

PTE **420 Evaluation in Professional-Technical Education** (3 cr). Methods and techniques; construction and use of objective tests, performance tests, rating scales, check lists.

PTE **J426/J526 Instructional Design and Curriculum** (3 cr). See ACTE J426/J526.

PTE **450 Industrial Safety** (3 cr). Same as ITED 450. Organization and administration of safety programs in industry and professional-technical education laboratories; materials, research literature, methods, and techniques for industrial safety education.

PTE **451 School Lab Planning and Administration** (3 cr). Same as ITED 451. For those in or entering occupational education who seek a competency-based approach to planning, organizing, and managing a school teaching lab/shop.

PTE **453 Task Analysis** (1 cr). Intro to task analysis methods, techniques, and procedures.

PTE **464 Career Guidance** (3 cr). Same as CASP 464. Designed for career development counselors and facilitators; establishment of the three pillars of career guidance and how to implement the steps for developing a comprehensive individualized career plan.

PTE **470 Technical Competence III** (1-12 cr, max 12). See PTE 270. Prereq: enrollment in the final semester of the degree program in professional-technical education.

PTE **471 Practicum: Professional-Technical Education Teaching** (3-10 cr, max 10). See ACTE 471.

PTE **472 Professional-Technical Education Methods** (3 cr). Selection and application of appropriate teaching methods; emphasis on demonstration, lecture, problem solving methods, learning activity packages, and instructional media and technology.

PTE **480 Advanced Technical Competence** (1-6 cr, max 6). Experiences to enable the individual to gain depth in technical competency beyond the basic certification requirements, and to maintain skills in harmony with current industrial practice. Prereq: perm.

PTE **484** (s) **Internship in Professional-Technical Education Teaching** (1-14 cr, max 28). See ACTE 484.

PTE **496 Directed Work Experience** (1-3 cr, max 9). See BuEd 496.

PTE **497** (s) **Practicum** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

PTE **499** (s) **Directed Study** (cr arr). Prereq: perm.

PTE **500 Master's Research and Thesis** (cr arr).

PTE **501** (s) **Seminar** (cr arr). Prereq: perm.

PTE **502** (s) **Directed Study** (cr arr). Prereq: perm.

PTE **503** (s) **Workshop** (cr arr). Prereq: perm.

PTE **504** (s) **Special Topics** (cr arr). Prereq: perm.

PTE **505 Professional Development** (cr arr). See PTE J405/J505.

PTE **507 The Future of Education and Work** (3 cr). See ACTE 507.

PTE **515 Instructional Strategies and Learning Styles** (3 cr). See PTE J415/J515.

PTE **518 Learning Styles** (3 cr). See PTE J418/J518.

PTE **524 Issues in Marketing Education** (3 cr). See BuEd 524.

PTE **526 Instructional Design and Curriculum** (3 cr). See ACTE J426/J526.

PTE **543 Administration and Supervision of Learning Programs** (3 cr). See ACTE 543.

PTE **551 Principles and Philosophy of Professional-Technical Education** (3 cr). See PTE J351/J551.

PTE **555 Program Evaluation for the Training and Learning Enterprise** (3 cr). See ACTE 555.

PTE **581 Theory, Practices, and Challenges of Leadership** (3 cr). See ACTE 581.

PTE **597** (s) **Practicum** (cr arr). Application of theories and techniques; supervised field experiences in selected settings. Graded P/F. Prereq: perm.

PTE **598** (s) **Internship** (cr arr). Supervised experience in teacher education, administration, supervision, or ancillary services in professional-technical education. Graded P/F. Prereq: perm.

PTE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

PTE **600 Doctoral Research and Dissertation** (cr arr).

# Psychology

**Richard Reardon, Chair, Dept. of Psychology (206 Student Health Ctr. 83844-3043; phone 208/885-6324).**

PREREQUISITE: Unless otherwise stated, Psyc 101 is a prerequisite to all other courses in this field. Unless a prerequisite is specifically stated, the prerequisite to all graduate courses is permission of department and instructor.

Psyc **101 Introduction to Psychology** (3 cr) (C). *May be used as core credit in J-3-e.* Intro to psychology topics, including sensation and perception, learning and thinking, motivation, personality and adjustment, social processes, psychological testing; emphasis on fundamental principles.

Psyc **200** (s) **Seminar** (cr arr). Prereq: perm.

Psyc **203** (s) **Workshop** (cr arr). Prereq: perm.

Psyc **204** (s) **Special Topics** (cr arr). Prereq: perm.

Psyc **218 Introduction to Research in the Behavioral Sciences** (4 cr). Primarily for majors in psychology. Logic and method of empirical research in the behavioral sciences; design, execution, and reporting of psychological experimentation and research. Three lec and one 2-hr lab a wk. Prereq: Psyc 101. Prereq or coreq: Stat 251.

Psyc **299** (s) **Directed Study** (cr arr). Prereq: perm.

Psyc **305 Developmental Psychology** (3 cr) (C). Conception through late adolescence; genetics, anatomy, physiology, biological changes during development, learning, socialization, cognition, and personality. Prereq: Psyc 101 or Ed 301.

Psyc **310 Psychology of Personality** (3 cr) (C). Theories of personality, basic concepts, techniques of measurement, and experimental methods; the normal personality.

Psyc **311 Abnormal Psychology** (3 cr) (C). Nature, causes, treatment, and prevention of patterns of emotional disturbances and personality disorders, including neuroses and psychoses.

Psyc **316 Industrial/Organizational Psychology** (3 cr). Application of psychological principles to the study of work behavior; includes topics such as personnel selection, performance appraisal, training, work motivation, teams, leadership, and job attitudes.

Psyc **320 Introduction to Social Psychology** (3 cr). Theories, concepts, and research on the social bases of behavior and social interaction; topics of personal and social relevance, aggression, prejudice, altruism and helping behavior, interpersonal attraction, behavior in groups, conformity, attitudes, authoritarianism, and obedience to authority.

Psyc **J325/J525 Cognitive Psychology** (3 cr). Survey and analysis of major topics in field; emphasis on contemporary research and theory; related topics in perception, memory, and information processing and transformation. Additional projects/assignments reqd for grad cr. Prereq: Psyc 101.

Psyc **J330/J530 Human Sexuality** (3 cr). Introduction to the fundamentals of human sexuality; emphasis on current trends and research. Additional projects/assignments reqd for grad cr. No prerequisite.

Psyc **372 Physiological Psychology** (3 cr) (C). Physiological bases of animal and normal human behavior. Prereq: Psyc 101, and Biol 102 or higher.

Psyc **390 Psychology of Learning** (3 cr) (C). Experimental literature of the nature and conditions of classical and operant conditioning, verbal learning, and cognition. Prereq: Psyc 218.

Psyc **400** (s) **Seminar** (cr arr). Prereq: perm.

Psyc **403** (s) **Workshop** (cr arr). Prereq: perm.

Psyc **404** (s) **Special Topics** (cr arr). Prereq: perm.

Psyc **411 Clinical Psychology** (3 cr). Survey of the field of clinical psychology including history, models, interviewing skills, diagnostic testing, psychotherapy methods, and professional issues.

Psyc **WS412 Psychological Testing and Measurement** (3 cr). WSU Psych 412.

Psyc **415 History and Systems of Psychology** (3 cr) (C). History of psychology as a field of scientific inquiry; overview of development of schools of thought, prominent figures, and key theories. Prereq: Two upper-division psychology courses.

Psyc **419 Adult Development and Aging** (3 cr). Analysis of change from early adulthood through death in the areas of social, cognitive, and physical development; examination of theories, concepts, and research in the area of lifespan development; study of the problems of aging, plasticity of functioning, and ingredients of successful aging.

Psyc **420 Personality and Social Development** (3 cr) (C) (Psyc 309). Personality and social development from birth through adolescence, including such topics as attachment, aggression, impulse control, sex differences, self concept, moral development, and effects of parental childrearing styles. Prereq: Psyc 101 and 305, or perm.

Psyc **421 Cognitive Development** (3 cr) (Psyc 409). Intellectual development of child from birth to maturity, mechanisms of intellectual growth, relationship between language and cognitive development. Prereq: Psyc 101 and 305, or perm.

Psyc **422 Disorders of Childhood and Adolescence** (3 cr). Overview of psychological disorders that affect children and adolescents; emphasis on how childhood mental illness is defined, diagnosed, and treated within multiple theoretical perspectives. Examines how multiple, interacting events shape both adaptive and maladaptive developmental outcomes. Prereq: Psyc 101 and 305, or perm.

Psyc **430 Tests and Measurements** (3 cr). Review of the major principles of test development including test construction and methods for determining test validity and reliability, some of the currently used scales, and study of scaling methods such as Thurstone scales, Likert scales, and semantic differentials. Prereq: Psyc 101 and Stat 251, or perm.

Psyc **435 Personnel Psychology** (3 cr). Review of theory and methods related to personnel issues; includes topics such as individual differences, selection, psychometrics, compensation, training programs, and performance appraisal. Prereq: Psyc 316.

Psyc **444 Sensation and Perception** (3 cr). Fundamental processes and variables in sensory, perceptual, and cognitive experiences of humans. Prereq: Psyc 218.

Psyc **446 Engineering Psychology** (3 cr). Application of principles of experimental psychology to analysis of interaction of the human operator with machine systems and work environments; emphasis on psychological aspects of human performance. Prereq: Psyc 218 or Stat 301 or perm.

Psyc **448 Psycholinguistics** (3 cr). See Engl 448.

Psyc **J450/J550 Training and Performance Support** (3 cr). Review of applicable theory and various methods for developing training programs and performance support systems; emphasis on developing skills for front-end analysis, training program and performance support design, and program evaluation. Additional project/assignments reqd for grad cr. Prereq: Psyc 325 or perm.

Psyc **J452/J552 Ergonomics and Biomechanics** (3 cr). Principles of anthropometry, biomechanics, and work physiology applied to workplace. Additional projects/assignments reqd for grad cr.

Psyc **456 Psychology of Emotion** (3 cr) (C). Theories of emotion; biological and social variables influencing the activation of emotion.

Psyc **J461/J561 Human-Computer Interaction** (3 cr). Overview of human-computer interaction (HCI) topics, including user models, dialog, display design, usability, software development, groupware, and multimedia. Additional projects/assignments reqd for grad cr. Prereq: Psyc 446 or perm.

Psyc **J470/J570 Introduction to Chemical Addictions** (3 cr). Understanding how individuals develop an addiction to psychoactive chemicals and how they recover from such an addiction; recognition, assessment, and treatment of various chemical addictions and how to do interventions for addicted individuals and their families; topics include drugs of abuse, symptoms and warning signs of chemical addiction, assessment, codependency, interventions, treatment, and recovery. Additional projects/assignments reqd for grad cr.

Psyc **J471/J571 Theories of Chemical Addictions** (3 cr). Comprehensive overview of all chemical addictions theories and related implications for diagnosis and treatment. Additional projects/assignments reqd for grad cr.

Psyc **J472/J572 Introduction to the Pharmacology of Psychoactive Drugs** (3 cr). Overview of neural mechanisms, behavioral responses, and addictive aspects of psychoactive drugs. Additional projects/assignments reqd for grad cr.

Psyc **J473/J573 HIV/AIDS/TB/STDs** (2 cr). Overview of HIV/AIDS, TB, and other STDs; preparing counselors to work with clients to prevent these diseases or counsel clients who have acquired these diseases; making counselors examine issues related to human sexuality and biases about sexually related topics. Additional projects/assignments reqd for grad cr.

Psyc **J474/J574 Record Keeping and Case Management in Chemical Addictions Counseling** (3 cr). Exploration and examination of the sequence of events and services that clients encounter as they begin and move through the treatment process in a typical addictions treatment setting, as outlined in the Twelve Core Functions and Global Criteria of the International Certification Reciprocity Consortium (ICRC); study of the Twelve Core Functions and the Addiction Counseling Competencies relevant to each area. Additional projects/assignments reqd for grad cr.

Psyc **J475/J581 Professional Ethics in Addictions Counseling** (3 cr). Overview of ethical issues and decision making related to addictions counseling; ethics related to harm reduction models and other issues. Additional projects/assignments reqd for grad cr.

Psyc **J476/J576 Relapse Prevention in Chemical Addictions Counseling** (3 cr). Overview of addictions relapse, issues and triggers related to relapse, prevention of relapse, and issues related to addictions relapse in general. Additional projects/assignments reqd for grad cr.

Psyc **J477/J577 Chemical Dependency and the Family** (3 cr). Overview of how chemical dependence impacts the family unit; intervention techniques to assist the family. Additional projects/assignments reqd for grad cr.

Psyc **J478/J578 Individual Therapy Techniques in Chemical Addictions Counseling** (3 cr). Techniques related to counseling individual chemical addictions clients; helping skills such as active listening, problem solving, paraphrasing; numerous role plays and other practicum exercises. Additional projects/assignments reqd for grad cr.

Psyc **J479/J579 Group Therapy Techniques in Chemical Addictions Counseling** (3 cr). Theoretical and practical understanding of the group therapy process with individuals from chemical addictions counseling; information about group therapy with actual experience of being part of a group. Additional projects/assignments reqd for grad cr.

Psyc **J480/J580 Client Centered Counseling for Behavior Change** (3 cr). Techniques related to counseling individuals who engage in high risk behaviors; primary focus on harm reduction models and how to reduce high-risk behaviors. Additional projects/assignments reqd for grad cr.

Psyc **496 Applied Behavior Analysis** (3 cr) (C). Analysis and assessment of behavior in real-life settings, e.g., home, business, industry, and institutions such as prisons and psychiatric hospitals; structured programs of intervention and assessment of behavior change; special emphasis on self-management of behavior. Prereq: Psyc 218 and 390.

Psyc **497** (s) **Practicum in Instruction** (1-3 cr, max 6). Tutoring and/or instructional services performed by advanced students under faculty supervision. Prereq: perm.

Psyc **498** (s) **Internship** (1-6 cr, max 6). Directed internship in an approved setting that features psychological applications. Prereq: perm.

Psyc **499** (s) **Directed Study** (cr arr). Prereq: perm.

Psyc **500 Master's Research and Thesis** (cr arr).

Psyc **501** (s) **Seminar** (cr arr). Prereq: perm.

Psyc **502** (s) **Directed Study** (cr arr). Prereq: perm.

Psyc **503** (s) **Workshop** (cr arr). Prereq: perm.

Psyc **504** (s) **Special Topics** (cr arr). Prereq: perm.

Psyc **517 Performance Evaluation** (3 cr). Major issues in performance evaluation; topics may include evaluation methodology, job analysis, and legal issues in performance appraisal. Prereq: perm.

Psyc **WS520 Attitudes and Social Cognition** (3 cr). WSU Psych 550.

Psyc **525 Cognitive Psychology** (3 cr). See Psyc J325/J525.

Psyc **528 Psychopathology** (3 cr). Review of symptoms, causes, and treatments in adult psychopathology; training in use of DSM-IV for differential diagnosis; may include practicum experience. Prereq: perm.

Psyc **530 Human Sexuality** (3 cr). See Psyc J330/J530.

Psyc **541 Social Psychology in the Workplace** (3 cr). Overview of the general theory and methods of organizational psychology; focus on how individual or group behavior is affected by the organizational environment; includes topics such as work motivation, leadership, teams, culture/climate, and job attitudes. Prereq: perm.

Psyc **WS544 Medical Psychology: Psychological and Pharmacological Interventions** (3 cr). WSU Psych 544.

Psyc **550 Training and Performance Support** (3 cr). See Psyc J450/J550.

Psyc **552 Ergonomics and Biomechanics** (3 cr). See Psyc J452/J552.

Psyc **555 Safety Analysis** (3 cr). Effect of environmental, job, and personal stressors on work performance; systems analysis; safety analysis and accident prevention.

Psyc **561 Human-Computer Interaction** (3 cr). See Psyc J461/J561.

Psyc **562 Advanced Human Factors** (3 cr). Review of topics and theories germane to human factors such as performance measurement systems, design specifications, research issues, controls and displays, human reliability, and illumination. Prereq: ME 409, Psyc 446, and Psyc 586 or Stat 401; or perm.

Psyc **570 Introduction to Chemical Addictions** (3 cr). See Psyc J470/J570.

Psyc **571 Theories of Chemical Addictions** (3 cr). See Psyc J471/J571.

Psyc **572 Introduction to the Pharmacology of Psychoactive Drugs** (3 cr). See Psyc J472/J572.

Psyc **573 HIV/AIDS/TB/STDs** (2 cr). See Psyc J473/J573.

Psyc **574 Record Keeping and Case Management in Chemical Addictions Counseling** (3 cr). See Psyc J474/J574.

Psyc **WS575 Psychopathology** (3 cr). WSU Psych 533.

Psyc **576 Relapse Prevention in Chemical Addictions Counseling** (3 cr). See Psyc J476/J576.

Psyc **577 Chemical Dependency and the Family** (3 cr). See Psyc J477/J577.

Psyc **578 Individual Therapy Techniques in Chemical Addictions Counseling** (3 cr). See Psyc J478/J578.

Psyc **579 Group Therapy Techniques in Chemical Addictions Counseling** (3 cr). See Psyc J479/J579.

Psyc **580 Client Centered Counseling for Behavior Change** (3 cr). See Psyc J480/J580.

Psyc **581 Professional Ethics in Addictions Counseling** (3 cr). See Psyc J475/J581.

Psyc **585 Research Methods** (3 cr). Philosophy of research, types of design, data analysis, research report. Prereq: Psyc 218 or equiv, or perm.

Psyc **586 Advanced Research Methods** (3 cr). Types of research designs and data analyses; use of mainframe computer packages for data analysis. Prereq: perm.

Psyc **598** (s) **Internship** (cr arr). Prereq: perm.

Psyc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Rangeland Ecology and Management

**Kendall L. Johnson, Head, Dept. of Rangeland Ecology and Management (205B CNR Bldg. 83844-1135; phone 208/885-6536).**

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

Rnge **200** (s) **Seminar** (cr arr). Prereq: perm.

Rnge **203** (s) **Workshop** (cr arr). Prereq: perm.

Rnge **204** (s) **Special Topics** (cr arr). Prereq: perm.

Rnge **221 Natural Resources Ecology** (3 cr). Same as For/WLF 221. Principles of plant and animal ecology. Major topics covered in the course include the physical environment, how organisms interact with each other and their environment, evolutionary processes, population dynamics, communities, energy flow and ecosystems, conservation biology, and human influences on ecosystems. Recommended preparation: introductory botany and zoology (i.e. Biol 213). Prereq: introductory biology (i.e. Biol 111 or 112), or perm.

Rnge **251 Principles of Range Resources Management** (2 cr). Development of range use and range resource management, rangeland vegetation types, current management issues, relationship of grazing use with other land uses and values.

Rnge **299** (s) **Directed Study** (cr arr). Prereq: perm.

Rnge **302 Wildland Field Ecology** (2 cr). Same as Fish/ForP/For/RRT/WLF 302. Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235 and For/Rnge/WLF 221.

Rnge **352 Natural History of Rangelands** (3 cr). Survey of rangeland plant communities of western North America designed to acquaint students with their physical, climatic, and vegetational characteristics Two lec and one lab/field trip a wk. Prereq: Rnge/For/WLF 221 or equiv. (Spring only)

Rnge **353 Rangeland Plant Identification and Ecology** (3 cr). Classification, description, and identification of the most important rangeland and riparian plants in North America; particular reference to important ecological roles of these plants. Prereq: For/Rnge/WLF 221 or perm.

Rnge **354 Wildland Vegetation Management and Restoration** (3 cr). Objectives, methods, benefits, and environmental impact of wildland vegetation management practices; ecological implications in vegetation management prescriptions for rangeland, forestland, and wetland restoration. Two 1-day field trips. Prereq: Rnge 251 and Rnge/For/WLF 221 or perm. (Alt/yrs; spring only)

Rnge **ID&WS357 Rangeland and Riparian Habitat Assessment** (3 cr). WSU NATRS 357. Methods for inventory and monitoring of upland and riparian rangeland communities; basic sampling techniques used for measuring vegetation attributes and assessing production and utilization of vegetation for management purposes; evaluation of plant communities will be interpreted with respect to ecological health, watershed protection, and value as livestock and wildlife habitat. Two lec and one field trip/lab a wk. Prereq: basic statistics course and perm.

Rnge **398** (s) **Renewable Natural Resources Internship** (cr arr). Same as Fish/For/WLF 398. Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

Rnge **400** (s) **Seminar** (cr arr). Prereq: perm.

Rnge **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Rnge **403** (s) **Workshop** (cr arr). Prereq: perm.

Rnge **404** (s) **Special Topics** (cr arr). Prereq: perm.

Rnge **430 Riparian Ecology and Management** (2 cr). Same as Fish 430. Structure, function, and management of riparian ecosystems; interrelationships of terrestrial and aquatic components of riparian areas. Prereq: WLF/For/Rnge 221.

Rnge **440 Wildland Restoration Ecology** (3 cr). Ecological principles and management practices involved in restoring and rehabilitating wildland ecosystems after disturbance or alteration to return damaged ecosystems to a productive and stable state. Prereq: a course in general ecology or perm. (Alt/yrs; spring only)

Rnge **454 Rangeland Weed Management** (3 cr). Ecological principles and management options for invasive plant control on rangelands; focus on landscape-level management approaches including detection, monitoring, and prevention of weed invasions,

restoration of weed-infested rangeland and coordinated weed management planning. One 2-day field trip. Recommended prereq: PlSc 338, Rnge 354. (Alt/yrs; fall only)

Rnge **456 Integrated Rangeland Management** (3 cr). Management strategies for integrating grazing with other natural resource values such as wildlife, water, timber, recreation, and aesthetics; emphasis on herbivore ecology including ecological impacts of grazing, ways to manage grazing, and nutritional relationships between plants and free-ranging ungulates on rangeland, pastureland, and forest ecosystems. One 1-week field trip. Prereq: Rnge 251.

Rnge **J458/ID-J558 Agroforestry** (3 cr). Same as For J458/J558. WSU NATRS 504. Interdisciplinary approach to sustainable land management that involves ecological, social, and economic integration of forest and woodland production with grazing and/or agriculture crops. Particularly suited to students from less-developed countries. Additional projects/assignments reqd for grad cr.

Rnge **ID459 Rangeland Ecology** (3 cr). WSU NATRS 459. Application of ecological principles in rangeland management; stressing response and behavior of range ecosystems to various kinds and intensity of disturbance and management practice. Two 1-day field trips. Prereq: a course in general ecology or perm.

Rnge **470 Interdisciplinary Natural Resource Planning** (3 cr). Same as Fish/ForP/For/RRT/WLF 470. Examines how ecological and social sciences are interrelated and how they influence natural resource decisions; students learn how to work effectively in teams to make sound management decisions and communicate those decisions to a variety of constituents. Three hrs of lec and three hrs of recitation a wk; one 2-day field trip. Prereq: Sr standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302 or RRT 306; or perm.

Rnge **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Same as Fish/ForP/For/RRT/WLF 485. Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

Rnge **493 Environmental Law** (2 cr). See WLF 493.

Rnge **497 Senior Research and Thesis** (cr arr). Same as Fish/ForP/For/RRT/WLF 497. A research investigation, selected and designed jointly by the student and professor, during which the student has the opportunity to learn research techniques of experimental design, proposal writing, data collection and analysis, scientific writing, and publication; at completion, the student will produce a publishable journal manuscript and/or a conference presentation. Prereq: Sr standing and perm.

Rnge **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing, GPA 2.5, and perm.

Rnge **500 Master's Research and Thesis** (cr arr).

Rnge **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

Rnge **502** (s) **Directed Study** (cr arr). Prereq: perm.

Rnge **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

Rnge **504** (s) **Special Topics** (cr arr). Prereq: perm.

Rnge **WS525 Experimental Plant Ecology** (3 cr). WSU NATRS 525.

Rnge **527 Landscape Ecology of Forests and Rangelands** (2-3 cr). Ecological relationships of biotic communities in heterogeneous environments, spatial and temporal patterns, importance of landscapes in maintenance of ecosystem diversity and function. One 2-hr lecture/discussion a week based on extensive reading of current literature and case studies. In addition, those students taking 3 credits will meet an additional hour a week, focusing on quantitative landscape analysis, and they will participate in a 2-day field trip. Prereq: upper-division plant or animal ecology. (Spring only)

Rnge **530 Stream Ecology** (3 cr). Same as Fish 530. Structure and function of running water ecosystems; principles of population, community, and ecosystem ecology in streams and rivers. Three 1-day field trips reqd. (Alt/yrs)

Rnge **541 Issues of Renewable Natural Resource Industries** (2 cr). Overview of renewable natural resource base industries with focus on forest products, range livestock, and tourism; review of historical and economic base for industries and current social, biological, and economic issues of importance.

Rnge **ID551 Rangeland Vegetation Ecology** (3 cr). WSU NATRS 551. Ecological concepts of the nature, dynamics, and distribution of plant communities; secondary successional processes, soil-vegetation relations, and development of vegetation-classification schemes for better land management. Prereq: plant ecology and perm. (Alt/yrs)

Rnge **ID552 Restoration Ecology** (2 cr). WSU NATRS 554. Restoration of disturbed or damaged ecosystems; fundamental principles from stress physiology and community ecology and review of case studies in restoration ecology used to examine how damaged ecosystems can be restored. Prereq: Rnge 459 or equivalent course in plant ecology, or perm. [http://www.uidaho.edu/ecology]

Rnge **555 Current Issues in Rangeland Resource Management** (2 cr). Investigation and disc of current issues in range resources and closely related fields. Prereq: perm. (Alt/yrs)

Rnge **ID&WS556 Foraging Behavior of Herbivores** (3 cr) (Rnge 553). Behavioral processes of rangeland herbivore foraging, including domestic livestock and wild ungulates; techniques for researching rangeland herbivore foraging behavior; application of theoretical concepts to grazing management. (Spring only)

Rnge **ID558 Agroforestry** (3 cr). See Rnge J458/J558.

Rnge **ID560 Plant Ecophysiology** (3 cr). WSU NATRS 524. Adaptations of individual plant species to their environment, emphasizing ecophysiological mechanisms that influence plant establishment, the physical environment, below- and above-ground productivity, and plant interation such as competition, herbivory, and allelopathy. Prereq: a course in general ecology (i.e. Rnge 221, Biol 311) and general botany, or perm. [http://www.uidaho.edu/ecology]

Rnge **570 World Biomes** (2 cr). A comprehensive survey and analysis of world biomes, which are continental-sized ecosystems; team projects with computer-based information technology (geographical information systems, digital media, and interactive multimedia programs) to analyze the structure and function of biomes; comprehensive analysis of interrelationships among the environment, flora and fauna, and major human influences on biomes. Prereq: a course in general ecology (i.e. Rnge 221 or Biol 314), general botany (i.e. Biol 311), and an advanced course in community ecology (e.g., Rnge 459 or Biol 431), or perm.

Rnge **595** (s) **Problems in World Resources** (1-3 cr, max 3). Prereq: perm.

Rnge **597** (s) **Practicum** (cr arr). Prereq: perm.

Rnge **598** (s) **Internship** (cr arr). Prereq: perm.

Rnge **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Rnge **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Recreation

**Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance, and Coordinator of Recreation (101 Phys. Ed. Bldg 83844-2401; phone 208/885-7921).**

Rec **102 Introduction to Recreation Professions** (1 cr). Intro to recreation and its related management problems, resources, and professional opportunities. Graded P/F.

Rec **ID110 Recreation for People with Disabilities** (3 cr). WSU RLS 110. Overview of recreation for special populations with emphasis on history, etiology, characteristics, services, resources, professional competencies and opportunities, and recreation programs. Two 1-day field trips may be reqd.

Rec **125 Outdoor Leisure Pursuits** (2 cr). Focus on wide range of outdoor leisure pursuits available in America, the public and private entities that administer them, and changes that increasing demand will necessitate in the future. Field trips reqd. (Alt/yrs)

Rec **WS181 Introduction to Hospitality Services Industries** (3 cr). WSU H A 181.

Rec **200** (s) **Seminar** (cr arr). Prereq: perm.

Rec **203** (s) **Workshop** (cr arr). Prereq: perm.

Rec **204** (s) **Special Topics** (cr arr). Prereq: perm.

Rec **215 River Reading and Whitewater Safety** (1 cr). River reading knowledge, whitewater safety, and rescue instruction; wild and scenic river legislation and requirements for back country travel along river corridors.

Rec **220 Rock Climbing** (1 cr). Intro to fundamentals of basic rock climbing including equipment, climbing techniques, knots, belaying, and rappelling; emphasis on skill development, risk management, and leadership. Three off-campus field sessions. Prereq: Two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **221 Mountaineering** (2 cr). Intro to fundamentals of mountaineering including equipment; fundamentals; rock, snow, and ice techniques; climbing equipment; navigation; expedition planning and safety; emphasis on skill development and safety. One 3-day field trip. Prereq: Rec 220 and two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm.

Rec **222 Cross Country Skiing** (1 cr). Intro to skills of cross country skiing including equipment, waxing, climbing techniques, turns, downhill, and diagonal glides. One 1-day field trip. Prereq: Two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **223 Winter Skills** (2 cr). Intro to fundamental skills reqd to successfully travel in winter environment, including equipment, trip planning, avalanche awareness, snow shelters, travel techniques, and safety including psychological and physiological aspects of cold/winter weather. One 1-day and one 2-day field trips. Prereq: Rec 222 and two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **224 Whitewater Rafting** (1 cr). Intro to skills of whitewater rafting including equipment, trip planning, permits, techniques, and river impact. One or two field trips. Prereq: Rec 215; two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **225 Kayaking** (1 cr). Intro to skills of whitewater kayaking including equipment, eskimo rolls, eddy turns, ferrying, and rapid maneuvering. One 2-day field trip. Prereq: Rec 215; two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **226 Whitewater Canoeing** (1 cr). Introduction to fundamentals of tandem canoe paddling on whitewater rivers; equipment, trip planning, and paddling technique will be examined and practiced. One lec and 2 hrs of lab a wk; one 4- to 7-day field trip. Prereq: Rec 215.

Rec **227 Mountain Biking** (2 cr). Introduction to fundamentals of mountain biking including equipment, trip planning, skill development, off-road riding, bike repair, and safety. One lec and 2 hrs of lab a wk; one 4- to 7-day field trip.

Rec **ID230 Principles of Recreational Therapy** (3 cr). WSU RLS 230. Philosophy, design, and development of recreation programs for persons with disabling conditions, as well as theory and rationale of recreational therapy. Field experience reqd. Prereq: Zool 120 and 121 or perm.

Rec **WS235 Principles of Tourism** (3 cr). WSU H A 235.

Rec **243 Recreation Activities** (2 cr). Same as PEP 243. Experience in planning, organizing, leading, and evaluating a broad range of games, social recreation, music, drama, arts and crafts, and special events activities.

Rec **254 Camp Leadership** (2-3 cr, max 3). Objectives, program, and philosophy of private, organizational, and school camp programs. One 3-4 day field trip. (Alt/yrs)

Rec **255 Backpacking and Camping Skills** (2 cr). Lecture, discussion, demonstration, and practical applications in backpacking and camping skills. Field trips reqd. Prereq: Two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm.

Rec **256 Camp Counseling Practicum** (2-3 cr, max 3). For camp counselors who are employed by or assigned to approved camps. Cr granted on the basis of one cr for each two wks of camping. Student contracts with instructor for written work. Prereq: perm.

Rec **260 Leisure and Society** (3 cr). Expanding role of leisure in U.S. life; emphasis on factors influencing leisure; analysis of leisure values as related to the individual and society.

Rec **275 Computer Applications in Leisure Services** (3 cr). Introduction to computer software applicable to the recreation and leisure profession; software used to produce presentation graphics, desktop publishing, spreadsheets, web page creation, and print material for the leisure profession; Internet access for electronic mail, and Web searches through web search engines; intro to SPSS statistical software.

Rec **280 Recreation Practicum** (1 cr, max 2). Practical experience in agency recreation and leisure services. Forty clock hrs reqd a cr. Graded P/F. Prereq: perm of advisor.

Rec **299** (s) **Directed Study** (cr arr). Prereq: perm.

Rec **300 Swimming Pool Management** (2 cr). Professional pool and spa operator training that will yield certification through the National Swimming Pool and Spa Foundation. Pool and spa chemistry; plant maintenance and operation; chemical safety; energy considerations; health and safety codes; mechanical aspects of pools and spas. Two 1-day field trips.

Rec **320 Outdoor Recreation Leadership** (2 cr). Consideration and examination of successful outdoor recreation leaders; contemporary issues, effective trip planning, and evaluation of outdoor trips. (Alt/yrs.)

Rec **321 Wilderness Medicine and Evacuation** (1 cr). Fundamentals of handling wilderness emergencies; instruction including prevention, recognition, evaluation, treatment, and evacuation of injured people in remote situations. One 2-day field trip. (Alt/yrs)

Rec **329 Leadership in Recreation** (3 cr). Intro to theories, methods, and styles of effective leadership; includes motivation, group dynamics, leadership skills, and abilities in the recreation and leisure setting. (Alt/yrs)

Rec **ID330 Recreational Therapy Programming for People with Disabilities** (3 cr). WSU RLS 330. Prevalent disabling conditions (including etiology, symptomatology, and characteristics) and their implications for programming intervention in clinical settings. Field trips reqd. (Alt/yrs)

Rec **340 Leisure and Tourism Enterprises** (3 cr). Intro to resort and commercial leisure enterprises including history, types of services, trends, careers, and relationship between business and leisure programs, services, and products. Field trips reqd. (Alt/yrs)

Rec **ID341 Assessment and Evaluation in Recreational Therapy** (2 cr). WSU RLS 344. Standardized assessment and evaluation tools currently used in recreational therapy services; integration of assessment practices into recreational therapy programs and how to choose standardized tools appropriate to both client and professional setting; practical assessment situations. (Alt/yrs)

Rec **ID342 Recreational Therapy in Psychiatric Settings** (3 cr). WSU RLS 342. Recreational therapy delivery in psychiatric settings, including long-term settings such as state hospitals, acute inpatient psychiatric settings, and community mental health centers; major psychiatric disorders, how to work as a part of an interdisciplinary team, and the viable role of recreation in the treatment process. Ten hrs of outside experience reqd. (Alt/yrs)

Rec **349 Facility Planning and Management** (2 cr). Principles and procedures of planning, design, development, and management of recreation and park areas and facilities. Three 1-day field trips. (Alt/yrs)

Rec **ID365 Leisure and the Aging Process** (3 cr). WSU RLS 365. Recreation programming for the elderly based on aging process, cultural influences, and psychological and sociological aspects; visitation and field experience reqd. (Alt/yrs)

Rec **WS382 Hospitality Management and Organization** (3 cr). WSU H A 381.

Rec **400** (s) **Seminar** (cr arr). Prereq: perm.

Rec **403** (s) **Workshop** (cr arr). Prereq: perm.

Rec **404** (s) **Special Topics** (cr arr). Prereq: perm.

Rec **J405/J505 Professional Development** (cr arr). Cr earned may not be applied toward grad degree program. Professional development and enrichment of recreational professionals. Additional projects/assignments reqd for grad cr.

Rec **410 Trends and Issues in Leisure Services** (3 cr). Current trends and issues in recreation and parks field; group discussion; background and experience in solving recreation problems through selected topics of current importance in recreation/parks field. (Alt/yrs)

Rec **420 Experiential Education** (2 cr). Philosophy and administration of adventure activities, initiative games, ropes courses, and their application to individual and group development; program development and staff development. Field trips reqd. (Alt/yrs)

Rec **425 Leisure Education** (2 cr). Historical and philosophical basis of leisure education and leisure counseling; emphasis on identification of individual interests and attitudes in relationship to recreation and leisure needs; review of existing programs, description of methods, techniques, instruments utilized; methods for developing individual leisure profiles. (Alt/yrs)

Rec **ID-J431/J531 Medical Terminology** (2 cr). WSU RLS 431. Intro to basic concepts of medical terminology and symbols related to working with people with disabilities. Additional projects/assignments reqd for grad cr. (Alt/yrs)

Rec **ID-J435/ID-J535 Clinical Aspects of Recreational Therapy** (3 cr). WSU RLS 430. Orientation to the practice of recreational therapy as a clinical modality; conceptual framework for understanding importance of using activities in the helping process used by RT profession in clinical settings. Cr earned in Rec 530 by completion of additional projects/assignments. Field trip reqd. Coreq: Rec 280. (Alt/yrs)

Rec **445 Professional Seminar** (1 cr). Orientation to rec internship, professionalism, and employment techniques including development of a vita and interviewing skills. Graded P/F.

Rec **455 Design & Analysis of Research in HPERD** (3 cr). Same as H&S 455 and PEP 455. This course is designed to survey the basic types of research methods often found in health, physical education, sport science, and recreation. A variety of research designs and computerized statistical analyses are studied to help students understand the systematic nature of problem solving. Various research problems as they relate to health, physical education, recreation, and human performance are discussed for the purpose of identifying the broad and diverse nature of research in the movement, leisure, and health professions. Prereq: Jr or Sr standing.

Rec **460 History and Philosophy of Recreation and Leisure** (2 cr). Development of recreation movement and its cultural, social, and economic background; philosophies of significant leaders in the field; students develop a personal philosophy of recreation. (Alt/yrs)

Rec **ID-J467/ID-J567 Recreational Therapy for People with Developmental Disabilities** (3 cr). Same as PEP J467/J567. WSU RLS 467. Programming models for people with developmental disabilities; RT intervention from developmental sequencing to community reintegration; assessment and treatment planning incorporated into lab experience. Cr earned in Rec 567 by completion of additional projects/assignments. Field trip reqd. (Alt/yrs)

Rec **WS482 Recreation Law and Risk Management** (3 cr). WSU RLS 482.

Rec **486 Recreation Program Planning and Marketing I** (2 cr). Planning and development of recreation programs and implementation of marketing techniques; theoretical emphasis with recreation special event programmed at end of semester.

Rec **487 Recreation Program Planning and Marketing II** (2 cr). Planning and development of recreation programs and implementation of marketing techniques; practical application emphasis. Prereq: Rec 486 or perm.

Rec **J493/J593 Management of Leisure Services** (3 cr). Planning and development; leadership, facilities, finances, services, and public relations. Cr earned in Rec 593 by completion of additional projects/assignments. (Alt/yrs)

Rec **495** (s) **Practicum in Tutoring** (1 cr, max arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Rec **498** (s) **Internship in Recreation** (cr arr). Supervised field work with a professional recreation agency. Prereq: Rec 280, 445, and sr standing.

Rec **499** (s) **Directed Study** (cr arr). Prereq: perm.

Rec **505 Professional Development** (cr arr). See Rec J405/J505.

Rec **WS522 Administrative Perspectives** (3 cr). WSU RLS 522.

Rec **WS529 Historical and Philosophical Analysis of Leisure** (3 cr). WSU RLS 529.

Rec **531 Medical Terminology** (2 cr). See Rec J431/J531.

Rec **WS532 Urban Outdoor Recreation** (3 cr). WSU RLS 530.

Rec **WS533 Social Psychological Perspectives of Leisure** (3 cr). WSU RLS 532.

Rec **WS534 Comprehensive Planning and Operations in Leisure Services** (3 cr). WSU RLS 535.

Rec **ID535 Clinical Aspects of Therapeutic Recreation** (3 cr). See Rec J435/J535.

Rec **ID567 Therapeutic Recreation for People with Developmental Disabilities** (3 cr). See Rec J467/J567.

Rec **WS582 Recreation Law and Risk Management** (3 cr). WSU RLS 582.

Rec **585 Historical and Philosophical Concepts of Leisure** (3 cr). The development of the recreation/leisure movement and its cultural, social, and economic backgrounds; philosophies of significant leaders and key events in the field; students develop a personal philosophy of recreation and leisure.

Rec **593 Management of Leisure Services** (3 cr). See Rec J493/J593.

Rec **ID594 Sport and Recreation Budget and Finance** (3 cr). WSU RLS 594. Policies and practices involved in acquisition, control, and financial management in sport and recreation agencies.

Rec **595 Sport and Recreation Facility Management** (3 cr). Management techniques and philosophies applied to recreation and sport facilities; includes operation, marketing, legislation and legal issues, personnel and technical design and planning. Field trips.

Rec **596 Recreation and Sport Management Behavior** (3 cr). Management behavior and strategies related to recreation and sport agencies, including leadership, supervision, and a variety of administrative issues.

Rec **ID597 Computer Applications in Recreation and Leisure Studies** (3 cr). WSU RLS 597. Identifying different computer applications in recreation and leisure fields; acquiring specific computer skills in use of specialized software packages for registration, scheduling, budgeting, and league operations; production of schedules and registration forms.

Rec **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate leisure agency. Graded P/F. Prereq: perm.

Rec **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Religious Studies

**Nicholas F. Gier, Coordinator (403 Morrill Hall 83844-3016; phone 208/885-6284).**

RelS **101 Introduction to Religious Studies** (3 cr). Intro to academic study of religion by analyzing history and development of Judaism, Christianity, and Islam.

RelS **133 Religion and Family** (2 cr). Overview of influence of religion on dating, courtship, marriage, and family life.

RelS **201 Introduction to Islam** (3 cr). Introduction to the religion of Islam; histories of the three main forms through which it has been transmitted to the modern era: Sunni, Shi'a, and Sufi; beginnings, development, and distinctiveness of these forms from the perspective of Muslim and non-Muslim scholarship, past and present; examination of Islam's founder, Muhammad, the Quran, dominant practices and beliefs, and the faith's historical relation to others.

RelS **204** (s) **Special Topics** (cr arr).

RelS **302 Biblical Judaism: Texts and Thought** (3 cr). See Phil 302.

RelS **303 Early Christianity: Texts and Thought** (3 cr). See Phil 303.

RelS **305 Philosophy of Religion** (3 cr). See Phil 305.

RelS **306 Hindu Thought** (3 cr). See Phil 306.

RelS **307 Buddhism** (3 cr). See Phil 307.

RelS **308 Confucianism and Taoism** (3 cr). See Phil 308.

RelS **321 Twentieth Century Theology** (3 cr). Recent developments in theology, with emphasis on American experience; includes evangelical, process, narrative, liberation, and feminist theologies.

RelS **322 Religious Movements in America** (3 cr). History and analysis of religion in America from native traditions through emerging religions on the contemporary scene.

RelS **327 Belief Systems** (3 cr). See Anth 327.

RelS **375 The Bible as Literature** (3 cr). See Engl 375.

RelS **404** (s) **Special Topics** (cr arr).

RelS **414 Development of Social Theory** (3 cr). See Soc 414.

RelS **442 The Medieval Church: Europe in the Early and High Middle Ages** (3 cr). See Hist 442.

RelS **447 The Age of the Renaissance and the Reformation** (3 cr). See Hist 447.

# Resource Recreation and Tourism

**Steven J. Hollenhorst, Head, Dept. of Resource Recreation and Tourism (19 CNR Bldg. 83844-1139; phone 208/885-7911; e-mail rrt@uidaho.edu; http://www.its.uidaho.edu/rrt).**

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

RRT **WS181 Introduction to Hospitality Services Industries** (3 cr). WSU H A 181.

RRT **200** (s) **Seminar** (cr arr). Prereq: perm.

RRT **203** (s) **Workshop** (cr arr). Prereq: perm.

RRT **204** (s) **Special Topics** (cr arr). Prereq: perm.

RRT **235 Society and Natural Resources** (3 cr). See For 235.

RRT **WS236 Principles of Tourism** (3 cr). WSU H A 235.

RRT **ID287 Professional Foundations of Resource Recreation and Tourism** (3 cr). WSU NATRS 371. Overview of development and management of wildland recreation and tourism resources and their integration into a political, economic, behavioral, and land use management framework; philosophical, theoretical, historical, and managerial foundations of leisure as they relate to societal trends in leisure from the perspective of the individual and society; contemporary issues, including special populations, ethnicity, and diversity.

RRT **299** (s) **Directed Study** (cr arr). Prereq: perm.

RRT **302 Wildland Field Ecology** (2 cr). Same as Fish/ForP/For/Rnge/WLF 302. Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions reqd; special fee assessed. Prereq: For/RRT 235 and For/Rnge/WLF 221.

RRT **304 Resource Recreation and Tourism Field Studies** (3 cr). Field site evaluation of resource recreation and tourism planning, development, marketing, and management cases. One hundred and twenty hours of instruction during a 12-day field excursion during summer session; pre- and post-visit written and oral assignments; special fee assessed.

RRT **306 Winter Field Ecology** (2 cr). Hands-on field study in a winter setting of ecological processes in terrestrial, aquatic, and human ecosystems from the individual to landscape and regional scales; application of ecological principles in a region of dynamic interaction of human and wildland management regimes. Seven days of classes and field laboratories and three days of individual project work. Prereq: one college-level biology course; chemistry and physics recommended.

RRT **310 Leisure Services Research and Evaluation** (4 cr). Quantitative, qualitative, and mixed approaches to studying leisure; how to choose and apply selective research methods; design, collection, and statistical analysis of primary and secondary data; program evaluation; reporting results; interpreting research literature; lab exercises in research design, data collection, and analysis; and the communication of research issues and findings to lay and professional audiences. Three lec and 2 hrs of lab a wk. Prereq: basic computer skills and Stat 251 or 301, or perm.

RRT **WS381 Hospitality Management and Organization** (3 cr). WSU H A 381.

RRT **383 Amenity Resource Economics for Environmental Policymaking** (3 cr). Theory of amenity and recreation resources as public goods; economic analysis of recreation, tourism, and amenity resources; application of economic principles and valuation methods to resource management and policy analysis. Prereq: Econ 202 or 201 or perm. (Alt/yrs)

RRT **ID385 Resource Recreation and Tourism Management** (3 cr). WSU NATRS 385. Comprehensive intro to theory, processes, and techniques for managing natural resources recreation and tourism systems; tourist, resource/attraction, and program management strategies demonstrating budgeting, contracting, and human resource management stressed. Prereq: RRT 287, 310 or perm. (Alt/yrs)

RRT **386 Resource Recreation and Tourism Planning** (3 cr). Integration of regional area aspects of land use planning relevant to provision of natural resource recreation and tourism opportunities; applied case studies in private and public sector used to demonstrate styles of planning, planning frameworks, and analysis techniques. Prereq: RRT 287, 310, or perm.

RRT **ID387 Environmental and Cultural Interpretation** (3 cr). WSU NATRS 373. Introduction to environmental and cultural interpretation; communication psychology and media applied to noncaptive audiences in recreation and tourism. Prereq: RRT 287 or perm.

RRT **396 Wilderness Research Internship** (3 cr). See WLF 396.

RRT **398** (s) **Internship** (cr arr). Prereq: perm.

RRT **400** (s) **Seminar** (cr arr). Prereq: perm.

RRT **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

RRT **403** (s) **Workshop** (cr arr). Prereq: perm.

RRT **404** (s) **Special Topics** (cr arr). Prereq: perm.

RRT **470 Interdisciplinary Natural Resource Planning** (3 cr). Same as Fish/ForP/For/Rnge/WLF 470. Examines how ecological and social sciences are interrelated and how they influence natural resource decisions; students learn how to work effectively in teams to make sound management decisions and communicate those decisions to a variety of constituents. Three hrs of lec and three hrs of recitation a wk; one 2-day field trip. Prereq: Sr standing, For/RRT 235, For/Rnge/WLF 221, For/Rnge/ForP/RRT/WLF/Fish 302 or RRT 306; or perm.

RRT **ID484 Management of Recreation Sites and Leisure Settings** (2 cr). WSU NATRS 475. Introduction to theory, processes, and techniques for managing natural resource-based recreation and tourism sites; emphasis on site impacts and their management, visitor/customer management, liability and risk management, and the proper care of landscape trees and other amenity resources.

RRT **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Same as Fish/ForP/For/Rnge/WLF 485. Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

RRT **ID486 Public Involvement in Natural Resource Management** (3 cr). WSU NATRS 477. Same as Mrtn 486. Theoretical and applied concepts of public involvement in both public and private sectors of natural resource management; historical and legal mandates, government agency responsibilities, applied methods and techniques, case studies, and practical experience. Three lec and three hrs of lab a wk; field trip may be reqd. (Alt/yrs)

RRT **ID487 Field Environmental Education** (3 cr). WSU NATRS 476. Concept and techniques of environmental education with emphasis on application at camps, parks, and similar recreation and tourism informal settings. (Alt/yrs)

RRT **ID488 Interpretive Methods Lab** (3 cr). WSU NATRS 473. Development and application of interpretive materials and techniques; concentration on equipment and methods commonly used by natural resource agencies for communicating management programs and interpreting natural environments to visitors. One 3-day field trip. Prereq: RRT 387 or perm.

RRT **489 Personalities and Philosophies in Conservation** (2 cr). Lives and thinking of people who have significantly influenced conservation practice or issues surrounding it.

RRT **490 Wilderness Management** (3 cr). Historical and legal aspects of the wilderness concept; conceptual and applied approaches, considering both ecological and sociological elements; recent research. (Alt/yrs)

RRT **491 Wilderness Leadership for Personal Growth** (3 cr). Diverse approaches used in wilderness experience programs, theoretical bases for different approaches, and hands-on experience with soft skills approaches to wilderness experience. Three field trips.

RRT **493 International Land Preservation and Conservation Systems** (3 cr). An examination of international approaches to land preservation and conservation; comparative analysis of philosophies, methods of implementation (Parks, Biosphere Reserves, RAMSAR sites, etc.), and associated issues and concerns with these social interventions; ramifications of conservation practices for biophysical and social systems. (Fall only)

RRT **494 Natural Resources Communication** (3 cr) (RRT 394). Overview of applied communication methods necessary for the successful management of forests, wildlife, and other natural resources as well as parks and recreation areas; introduction to public involvement, marketing, public relations, environmental interpretation, and environmental education. One afternoon field trip reqd.

RRT **496 Monitoring Human Impacts in Wilderness** (3 cr). Theoretical and applied concepts of identifying, measuring, and monitoring changes in wilderness ecosystems caused by human influences, including recreation use, management practices, and both on-site and off-site development. Field trips may be reqd. (Alt/yrs)

RRT **497 Senior Thesis** (2-4 cr, max 4). Same as Fish/ForP/For/Rnge/RRT/WLF 497. Independently plan and conduct a thesis project; write and defend the thesis under supervision of an advisor. Prereq: Sr standing and minimum 3.20 GPA or perm.

RRT **498** (s) **Internship** (cr arr). Prereq: perm.

RRT **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing, GPA 2.5, and perm.

RRT **500 Master's Research and Thesis** (cr arr).

RRT **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

RRT **502** (s) **Directed Study** (cr arr). Prereq: perm.

RRT **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

RRT **504** (s) **Special Topics** (cr arr). Prereq: perm.

RRT **505** (s) **Professional Development** (cr arr). Cr earned in 505 will not be accepted toward graduate degree programs.

RRT **506 Fundamentals of Research** (4 cr). Research approaches, designs, and methods as applied in natural resources, leisure, and tourism professions. Prereq: basic statistics.

RRT **510 Applications of Communication Theory in Natural Resource Management** (3 cr). Examination of communication theories and their applications in sustainable natural resource management; emphasis on social psychological approaches to understanding persuasive communication and applications in environmental interpretation and education, marketing, and sustainable development. Recommended preparation: Comm 449.

RRT **520 Human Dimensions of Wildlife Management** (2 cr). See WLF 520.

RRT **541 Issues of Renewable Natural Resource Industries** (2 cr). Overview of renewable natural resource base industries with focus on forest products, range livestock, and tourism; review of historical and economic base for industries and current social, biological, and economic issues of importance.

RRT **571 Human Dimensions of Ecosystem Management** (3 cr). A survey of research on key concepts, principles, and findings of social sciences pertaining to biophysical and social ecosystems, approaches for resource management development for diverse human values and benefits, and the role of humans in ecosystems; examines the state-of-knowledge based on recent studies in environmental psychology, community development and planning, rural sociology, and economic valuation and regional economic analyses; explores their significance for understanding human-ecosystem relationships and their possible ramifications for future resource policy and management.

RRT **583 Nature-Based Tourism** (3 cr). Current methods and approaches to natural resource tourism and its social, economic, and resource impacts, organizations involved, and management styles used by travel and tourism industry. (Alt/yrs)

RRT **586 Social Ecology of Natural Resources** (3 cr). See For 586.

RRT **587 Research Literature in Resource Recreation and Tourism** (3 cr). Readings in research literature pertinent to problems, practices, and theories of recreation and tourism; evolution of literature and critical evaluation of scientific methods used.

RRT **591 Theories of Recreation and Tourism Behavior** (3 cr). Same as Soc 591. Application of social science perspectives to the analysis of recreation and tourism behavior; pertinent social science frameworks are explored.

RRT **WS594 Environmental and Natural Resources Issues and Ethics** (3 cr). WSU NATRS 594.

RRT **595** (s) **Advanced Topics in International Conservation** (1-3 cr, max 3). Focused analysis of selected international nature conservation issues.

RRT **597** (s) **Practicum** (cr arr). Graded P/F. Prereq: perm.

RRT **598** (s) **Internship** (cr arr). Prereq: perm.

RRT **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

RRT **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Sociology

**Donald E. Tyler, Chair, Dept. of Sociology/Anthropology/Justice Studies (101 Phinney Hall 83844-1110; phone 208/885-6751).**

PREREQUISITE: The successful completion of Soc 101 and three additional credits of lower-division sociology course work are required for enrollment in upper-division sociology courses; exceptions by permission.

Soc **101 Introduction to Sociology** (3 cr) (C). *May be used as core credit in J-3-e.* Basic theories, concepts, and processes involved in scientific study of society; includes socialization process, social inequality, the family, religion, deviance, population, the environment, and social change.

Soc **200** (s) **Seminar** (cr arr). Prereq: perm.

Soc **203** (s) **Workshop** (cr arr). Prereq: perm.

Soc **204** (s) **Special Topics** (cr arr). Prereq: perm.

Soc **209 Alternatives to Violence (ATV) Training** (2 cr). Participation in the training for ATV advocates that includes background information on domestic violence and sexual assault (36 hours) and entry-level techniques of working with victims; requires service in the agency for the duration of the year. Graded P/F. Limited enrollment. Prereq: perm.

Soc **220 Marriage and the Family** (3 cr). Introduction to traditional and alternative marriage styles; gender role socialization, mate selection, parenting, divorce, and remarriage.

Soc **230 Social Problems** (3 cr) (C). Contemporary social issues and personal deviations; crime and delinquency, poverty and wealth, drugs, sexual variations, racism, sexism, and the environment.

Soc **240 Introduction to Social Services** (3 cr). Survey of the field of social welfare and contemporary social services. Prereq: Soc 101 and 230. (Alt/yrs)

Soc **299** (s) **Directed Study** (cr arr). Prereq: perm.

Soc **301 Introduction to Diversity and Stratification** (3 cr). Same as Anth 301. An interdisciplinary and historical study of diversity and stratification in a cross-cultural global context. The course examines multiple forms of diversity and stratification including, but not limited to, culture, class, race/ethnic, gender/sexuality, religious diversity, and political ideology in an effort to raise students' ability to interact with and understand others in our increasingly multicultural world.

Soc **310 Methods of Social Research** (3 cr) (Soc 410). Principal methods of data collection, analysis, and interpretation. Prereq: Stat 251; departmental major or minor.

Soc **313 Collective Behavior** (3 cr) (C). Analysis of such episodes of behavior as riots, demonstrations, panics, hysteria, as well as interaction of sociological, political, and communication processes involved in public acceptance of fashion, fads, and ideology in a mass society.

Soc **314 Society and Self** (3 cr). Examination of the relationship between society and the self with a focus on the construction, maintenance, and performance of identities in America; exploration of sociological theories of the self, stigma, and social roles. Prereq: upper-division status and Soc 101 or equivalent.

Soc **315 Community Service Learning** (1-4 cr, max 4). Directed community service, requiring 67 to 140 hours, with concurrent seminar that integrates service experience with theories of human behavior. Prereq: Soc 101, 230, 240, and sociology major, or perm.

Soc **320 Sociology of Substance Abuse** (3 cr). Sociological-psychological analysis of etiology, epidemiology, prevention, and treatment of substance abuse in U.S.; major focus on family issues (including marital relationships, co-dependency) and lifestyle changes; dynamics of social change, subcultures, and symbolic functions attached to drug abuse; issues related to gender, occupational functioning, AIDS, and other topics.

Soc **325 Sociology of the Family** (3 cr). Comparative and historical analysis of family systems, principles of social organization of the family; macroanalysis of kinship structures.

Soc **330 Juvenile Delinquency** (3 cr). Extent, causes, and control of juvenile delinquent behavior.

Soc **331 Criminology** (3 cr). Extent, criminal patterns, causes, correctional institutions, alternatives to incarceration. One 1-day field trip.

Soc **332 Corrections** (3 cr). Same as JS 332. History, facilities, processes, and strategies for correction and punishment of offenders; analysis of concepts of prevention and control of crime.

Soc **360 Population Dynamics and Distribution** (3 cr). See Geog J360/J560.

Soc **WS396 Social Work with the Aging** (3 cr). WSU S W 396.

Soc **400** (s) **Seminar** (cr arr). Prereq: perm.

Soc **403** (s) **Workshop** (cr arr). Prereq: perm.

Soc **404** (s) **Special Topics** (cr arr). Prereq: perm.

Soc **J414/J514 Development of Social Theory** (3 cr). Soc 414 same as RelS 414. Development of social theory from classical roots through contemporary schools; biographical accounts and original works in sociological theory. Additional projects/assignments reqd for grad cr.

Soc **423 Social Stratification** (3 cr) (Soc 323). Study of social inequality with a focus on the class structure of U.S. society; theories of stratification; consequences of social inequality. Prereq: Soc 101 and 230.

Soc **424 Sociology of Gender** (3 cr) (Soc 324). Historical and comparative analysis of the various roles, statuses, and life opportunities of men and women; emphasis on how gender roles develop in society and their effect on social structure, social institutions, and interpersonal interaction. Prereq: Soc 101 and a 3 cr lower-division Soc course, or Soc/Anth 301.

Soc **427 Racial and Ethnic Relations** (3 cr) (Soc 322). Same as Anth 427. Examination of the social construction of racial categories and meanings; theories of race relations; historical and contemporary experiences of racial/ethnic groups in the U.S.; contemporary issues and debates. Prereq: Soc 101 and a 3 cr lower-division Soc course, or Soc/Anth 301.

Soc **J430/J530 Deviance** (3 cr). Analysis and critique of theories of deviant behavior as applied to delinquency, prostitution, chemical dependencies, mental disorders, etc. Additional projects/assignments reqd for grad cr. Prereq: Soc 330 or 331 or perm.

Soc **431 Personal and Social Issues in Aging** (3 cr). Social, psychological, and physical impacts of aging on the individual and on society.

Soc **434 Family Violence** (3 cr). Explanations, patterns, and treatment of spouse abuse, child abuse, sexual exploitation of family members, and elder abuse.

Soc **470 Senior Seminar in Applied Research** (3 cr). Conducting sociological research focused on community needs and social policy evaluation. Prereq: upper-division status, Soc 310 and Stat 251, or perm.

Soc **495** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Soc **498** (s) **Internship** (1-6 cr, max 6). Supervised professional field experience in human service organizations. Graded P/F. Prereq: departmental major and perm.

Soc **499** (s) **Directed Study** (cr arr). Intended to accommodate a wide variety of sociological topics. Prereq: perm.

Soc **501** (s) **Seminar** (cr arr). Subjects normally offered: sociological research, social problems, and social theory. Prereq: perm.

Soc **502** (s) **Directed Study** (cr arr). Subjects normally offered: sociological theory, human ecology, and race relations. Prereq: perm.

Soc **504** (s) **Special Topics** (cr arr). Prereq: perm.

Soc **507** (s) **Research Methodology** (3 cr). See AgEc 507.

Soc **514 Social Theory** (3 cr). See Soc J414/J514.

Soc **530 Deviance** (3 cr). See Soc J430/J530.

Soc **591 Theories of Recreation and Tourism Behavior** (3 cr). Same as RRT 591. Application of social science perspectives to the analysis of recreation and tourism behavior; pertinent social science frameworks are explored.

# Soils

**Matthew J. Morra, Division Chair, Soil Science (242 Iddings Wing, Ag. Sc. Bldg. 83844-2339; phone 208/882-6315; mmorra@uidaho.edu).**

Soil **205 General Soils** (3 cr). Introduction to the physical, chemical, and biological nature of soils. Prereq: Chem 101 or satisfy prereq for Chem 111.

Soil **206 General Soils Lab** (1 cr). Lab study relevant to Soil 205. Experiments and demonstrations on basic and applied aspects of soil science. One 3-hr lab a wk. Coreq: Soil 205.

Soil **ID&WS345 Sustainable Agriculture** (3 cr). WSU SoilS 345. Environmental issues in sustainable agriculture including human, land, air, water, and energy resources; recycling, pollution, biotechnology, and risk-benefit assessment. Available only in video format. Prereq: 2 semesters of college-level physical or biological science or perm.

Soil **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

Soil **404** (s) **Special Topics** (cr arr). Prereq: perm.

Soil **415 Soil Physics** (3 cr). Physical properties of soils and their relationships to moisture, aeration, and temperature; cultural practices and erosion problems. Two lec and one 3-hr lab a wk. Prereq: Soil 205, 206, and Phys 111. (Alt/yrs)

Soil **J419/J519 Solute Transport in Porous Media** (2 cr). Transport processes and interactions of inorganic and organic solutes in soil; convective and diffusive processes, hydrodynamic dispersion. Term project required for grad cr. Prereq: Soil 205 or perm. (Alt/yrs)

Soil **422 Environmental Soil Chemistry** (3 cr). Chemical processes in soil environment. Prereq: Soil 205, 206, and Chem 112 or 113. (Alt/yrs)

Soil **J423/J523 Soil-Plant Analysis** (2 cr). Quantitative inorganic chemical analysis of soil-water-plant system. Special project reqd for grad cr. One lec and one 3-hr lab a wk. Prereq: Soil 205, 206, and Chem 112 or perm. (Alt/yrs)

Soil **J425/J525 Microbial Ecology** (3 cr). See MMBB J425/J525.

Soil **437 Soil Biology** (3 cr). Introduction to soil organisms including bacteria, fungi, and macroinvertebrates and the influence of their activities on soil processes. Two lec and one 3-hr lab a wk. Prereq: Soil 205 and MMBB 250 or perm. (Alt/yrs)

Soil **438 Pesticides in the Environment** (3 cr). Same as Ent, Intr, and PlSc 438. Principles of pesticide fate in soil, water, and air; pesticide metabolism in plants, pesticide toxicology, and pesticide mode-mechanism of action; pest resistance to pesticides; biotechnology in pest control; regulations and liability; equipment application technology; pesticide transport, storage, and disposal; and social and ethical considerations. Prereq: Chem 275.

Soil **446** (s) **Soil Fertility** (1-3 cr, max 3). Principles of soil fertility management; availability of plant nutrients and their relationship to plant growth and fertilization practices. Prereq: Soil 205 and 206.

Soil **J447/ID-J547** (s) **Soil Fertility Management** (1-3 cr, max 3). WSU SoilS 547. Philosophy of fertilizer recommendations based on soil and plant tissue testing; principles of fertilizer manufacture, placement, and use for improving plant growth. Project reqd for grad cr. Prereq: Soil 446.

Soil **454 Soil Development and Classification** (3 cr). Relationship of soil development to soil properties; soil profile descriptions and classification. Two lec and one 2-hr lab a wk; two 1-day or one 2-day field trips. Prereq: Soil 205 and 206.

Soil **455 Forest Soils: Morphology, Function, and Spatial Dynamics** (3 cr). Same as For 455. Soils as fundamental components of forested ecosystems; relation of soil properties to forest productivity and management; soil processes within ecosystems; soil-landscape interactions and inventory. Two lec and one 3-hr lab a wk; one 2-day field trip may be required. Prereq: Soil 205 or perm.

Soil **456 North Idaho Field Trip** (1 cr). Soils and land use in northern Idaho ecosystems; emphasis on soil parent materials, soil formation and morphology, and soil-plant community relationships. Graded P/F. One 3-day field trip; additional class meetings and assignments before and after field trip. Prereq: Soil 205 or perm.

Soil **458 Soil and Site Evaluation** (1-2 cr). Description and evaluation of soils; emphasis on morphological features and properties that influence land use. Graded P/F. Two-four hrs of lab a wk; one 3-day or one 6-day field trip. Prereq: Soil 205 or perm.

Soil **ID&WS460 Environment, Agriculture and Food** (3 cr). WSU SoilS 460. Environmental issues in agriculture and food production; pesticides, fertilizers, organic wastes, biotechnology, quality of life, risk-benefit assessment. Prereq: 1 year of biological or physical science or perm.

Soil **499** (s) **Directed Study** (cr arr). Prereq: perm.

Soil **500 Master's Research and Thesis** (cr arr).

Soil **501** (s) **Seminar** (cr arr). Prereq: perm.

Soil **502** (s) **Directed Study** (cr arr). Prereq: perm.

Soil **504** (s) **Special Topics** (cr arr). Prereq: perm.

Soil **WS513 Models for Vadose Zone Transport** (2 cr). WSU SoilS 513. (Alt/yrs)

Soil **519 Solute Transport in Porous Media** (2 cr). See Soil J419/J519.

Soil **WS521 Environmental Soil Chemistry** (3 cr). WSU SoilS 521.

Soil **523 Soil-Plant Analysis** (2 cr). See Soil J423/J523.

Soil **525 Microbial Ecology** (4 cr). See MMBB J425/J525.

Soil **ID526 Soil Mineralogy** (2 cr). WSU SoilS 526. Distribution and significance of common soil minerals; weathering and general reactivity as related to mineral structures; techniques of mineral identification including x-ray diffraction, chemical dissolution procedures, optical and electron microscopy. One lec and one 3-hr lab a wk. Prereq: Soil 422, 454 or perm. (Alt/yrs)

Soil **528 Advanced Chemistry of Soil Environment** (3 cr). Practical treatment of physical and chemical processes affecting ion retention and bioavailability in soils and sediments including speciation, adsorption, precipitation, dissolution and redox reactions. Prereq: Soil 422 or perm. (Alt/yrs)

Soil **ID537 Soil Biochemistry** (3 cr). WSU SoilS 537. Same as MMBB 537. Origin, chemical structure, and significance of soil biochemical compounds. Prereq: Soil 422, MMBB 380, MMBB 250 or perm. (Alt/yrs)

Soil **WS541 Soil-Plant-Microbial Interaction** (3 cr). WSU SoilS 541. (Alt/yrs)

Soil **ID547** (s) **Soil Fertility Management** (1-3 cr, max 3). See Soil J447/J547.

Soil **549 Tropical Soils** (3 cr). Same as For 549. Management of tropical soils in relation with nitrogen, acidity, liming, phosphorus, and other nutrients; effects of cropping/forestry systems on soil productivity; survey of types and potential uses of soils in the tropics. Prereq: Soil 205 or perm. (Alt/yrs)

Soil **WS551 Advanced Pedology** (3 cr). WSU SoilS 551. (Alt/yrs)

Soil **ID557 Advanced Soil Genesis and Classification** (3 cr). WSU SoilS 557. Processes of soil genesis as influenced by environmental factors; rationale and development of soil taxonomy; field study of pedological problems. Two lec and one 2-hr lab a wk; 1/2-day and 1-day field trips reqd. Prereq: Soil 454 or perm. (Alt/yr)

Soil **597** (s) **Practicum** (cr arr). Prereq: perm.

Soil **598** (s) **Internship** (cr arr). Graded P/F. Prereq: perm.

Soil **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Soil **600 Doctoral Research and Dissertation** (cr arr).

# Special Education

**Cindy S. Marble, Coord. of Special Education (405-A Educ. Bldg. 83844-3082; phone 208/885-7803).**

EDSP **200** (s) **Seminar** (cr arr). Prereq: perm.

EDSP **204** (s) **Special Topics** (cr arr).

EDSP **275 Education of People with Disabilities** (3 cr) (C). History of provision of services, major movements, and philosophical changes; overview of legal issues and mandates; discussion of disabilities and their relation to learning and instruction. Prereq: sophomore standing; coreq: EDSP 190 or perm.

EDSP **299** (s) **Directed Study** (cr arr). Prereq: perm.

EDSP **325 Classroom Applications of Learning Theories** (2 cr) (C) (EDSP 280). Emphasis on behavioral principles and their relationship to instructional strategies; completion of a project in an applied setting. Prereq: ED 201 or perm.

EDSP **326 Students with Behavioral and Emotional Issues** (2 cr). Strategies for developing and implementing educational programs for students with various behavioral and emotional issues, including those who qualify as seriously emotionally disturbed; discussion of assessment, programming, legal, and cultural issues. Prereq: EDSP 325 or perm.

EDSP **350 Language and Communication Development and Disorders** (3 cr) (EDSP 487). Overview of language, communication, and socio/emotional development and their interaction with cognitive and learning disabilities; legal and cultural issues; informal assessments and teaching strategies; models for collaboration with speech and language professionals. Prereq: ED 201.

EDSP **351 Family and Community Involvement** (2 cr) (EDSP 421). Orientation to theory and practice for working with parents and families in the education of persons with disabilities; school and community systems and resources; parent-teacher communication; skills in collaborating with other professions, particularly paraprofessionals and volunteers in the classroom. Prereq: EDSP 325 and 350 or perm.

EDSP **390** (s) **Special Education/Field Experience** (1-3 cr, max 3). Supervised observation and/or instruction with students with disabilities; group discussion sessions. Graded P/F.

EDSP **400** (s) **Seminar** (cr arr). Prereq: perm.

EDSP **403** (s) **Workshop** (cr arr). Prereq: perm.

EDSP **404** (s) **Special Topics** (cr arr).

EDSP **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program. Additional projects/assignments reqd for grad cr.

EDSP **425 Evaluation of Children and Youth** (2 cr). Assessment procedures for determining eligibility and identifying educational needs of students with disabilities, including legal issues and current trends. Prereq: EDSP 325 or perm; coreq: EDSP 390, 426.

EDSP **426 Developing Instructional Programs** (2 cr) (EDSP 377). Overview of assumptions, current trends, legal and cultural issues; application of learning principles and strategies for curriculum development; collaborative development of Individual Education, Instruction, and Transition Plans; methods for evaluating student progress and instructional effectiveness. Prereq: EDSP 325, 351; coreq: EDSP 390, 425.

EDSP **427 Curriculum Development and Adaptation** (3 cr) (EDSP 378). Orientation to philosophies of curriculum development; advantages and disadvantages of curricular approaches; selection, evaluation, and adaptations of curricula and materials; implementation and evaluation of an IEP and lessons in a school setting; models of collaboration and staffing strategies; legal and cultural issues. Prereq: EDSP 426; coreq: EDSP 390.

EDSP **428 Issues in Secondary Special Education** (2 cr). Examination of various programs and curricula available for secondary students with disabilities; the process of making and implementing transition plans through case-based instruction; emphasis on interagency connections and the use of community resources. Coreq: EDSP 390, 427.

EDSP **477 Generating Curricula: Inclusive Classrooms** (3 cr). Philosophic assumptions guiding curriculum, use of an ecological approach for assessment, family involvement, and integrating developmental and academic perspectives; instructional strategies; legal issues. Prereq: EDSP 426 or perm; coreq: EDSP 390.

EDSP **480 Practicum** (7 or 14 cr). Dual majors enroll for 7 cr; single majors for 14 cr. Supervised classroom experience with students with disabilities. Graded P/F. Prereq: admission to teacher education, 2.5 GPA, and perm of dept. (Submit application to director of clinical experiences in teacher education by December 1 of school year before enrolling.)

EDSP **484** (s) **Special Education Internship** (1-14 cr, max 14). Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Prereq: perm of division; coreq: integrated course work and ED 401.

EDSP **499** (s) **Directed Study** (cr arr). Prereq: perm.

EDSP **500 Master's Research and Thesis** (cr arr).

EDSP **501** (s) **Seminar** (cr arr). Prereq: perm.

EDSP **502** (s) **Directed Study** (cr arr). Prereq: perm.

EDSP **503** (s) **Workshop** (cr arr). Prereq: perm.

EDSP **504** (s) **Special Topics** (cr arr). Prereq: perm.

EDSP **505** (s) **Professional Development** (cr arr). See EDSP J405/J505.

EDSP **522 Advanced Evaluation Techniques** (3 cr). Evaluation tools, practices, and processes that extend beyond eligibility decisions to alternative assessments for early childhood, elementary, and secondary students with disabilities; integration of assessment and curriculum; legal, cultural, and ethical issues.

EDSP **540 Behavioral Analysis for Children and Youth** (3 cr). Application of learning theory to instruction; principles of behavior analysis with application to teaching; applied research techniques, ethical, legal, and cultural issues. Completion of field work in applied setting required.

EDSP **542 Families: Issues of Disability and Culture** (3 cr). Issues of families and individuals with disabilities; theories and strategies for forming partnerships with families across curricula, assessment, vocational, residential, and related areas; strategies for working with various cultural perspectives; legal issues. Completion of field work in applied setting required.

EDSP **543 Physical and Medical Issues** (3 cr). Legal and other issues; implications of physical and medical conditions; models for coordination of services provided in instructional settings; includes field component.

EDSP **548 Special Education Curriculum** (3 cr). Theories of curriculum; models of teaching, instructional strategies, evaluation of student progress and service delivery; issues and trends in special education.

EDSP **549 Language, Communication, and Social/Emotional Enhancement** (3 cr). Overview of theory and research findings; discussion of current issues, rationale, and intervention programs and strategies with an emphasis on social relations and interactions, legal mandates, and cultural issues. Includes a field component and project.

EDSP **560 Early Childhood Development and Assessment** (3 cr). Overview of development of young children; emphasis on a review of ethical/legal issues and methods and tools for evaluation and assessment, including process of developing an IFSP or IEP with functional goals.

EDSP **561 Early Childhood Special Education Instruction** (3 cr). Overview of instructional strategies and methods for teaching young children with disabilities in natural settings with age appropriate peers; emphasis on strategies for adapting the environment, schedule, and teaching methods to promote inclusion for young children; the link between curriculum and assessment is reviewed and expanded.

EDSP **562 Collaboration and Teaming** (3 cr). Overview and specific application of teaming practices that promote collaboration among disciplines and across agencies and settings serving persons with disabilities; interagency agreements, strategic planning for system change to promote collaboration, and methods for evaluating success.

EDSP **577 Generating Curricula: Issues and Strategies for Inclusive Classrooms** (3 cr). Philosophic issues, reform agendas and legal precedents guiding curriculum, ecological model for assessment, instructional strategies, and curricula integrated with developmental and academic perspectives; staffing strategies, family-school partnerships, administrative issues. Coreq: EDSP 597 (Practicum: Low Incidence).

EDSP **580 Consulting Teacher** (3 cr). Emphasis on models of consultation; role and responsibility of positions; skills necessary to establish productive, collaborative relationships with school personnel; systems change theory.

EDSP **582 Administration of Special Education** (3 cr). Overview of administration of special education including legal issues, leadership skills, systems change theory, management of personnel, budget, and effective use of human and fiscal resources.

EDSP **597** (s) **Practicum** (cr arr). Prereq: perm.

EDSP **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

EDSP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

EDSP **600** **Doctoral Research and Dissertation** (cr arr).

# Statistics

**Christopher J. Williams, Interim Director, Division of Statistics (415A Carol Ryrie Brink Hall 83844-1104; phone 208/885-2929).**

CREDIT LIMITATIONS: Credit is not given for both Stat 251 and 301 or for both Stat 251 and 271.

Stat **150 Introduction to Statistics** (3 cr). *May be used as core credit in J-3-c.* Intro to statistical reasoning with emphasis on examples and case studies; topics include design of experiments, descriptive statistics, measurement error, correlation and regression, probability, expectation, normal approximation, sample surveys, tests of significance.

Stat **251 Principles of Statistics** (3 cr). *May be used as core credit in J-3-c.* Cr is not given for Stat 251 after Stat 271 or Stat 301. Intro to statistical methods including design of statistical studies, basic sampling methods, descriptive statistics, probability and sampling distributions; inference in surveys and experiments, regression, and analysis of variance. Two lec and one 2-hr recitation period a wk (recitation periods are designed to provide students with experiences generating data, conducting statistical analyses, and interpreting results). Prereq: Math 137, 143, 160, 170, or 2 yrs of high school algebra and perm.

Stat **262 Decision Analysis** (1 cr). May not be taken for credit after Stat 271. An overview of basic components of decision theory, conditional probability, and Bayesian analysis. Prereq or coreq: Stat 251.

Stat **271 Statistical Inference and Decision Analysis** (4 cr). Credit not allowed for both Stat 271 and 251 or for both Stat 271 and 301. Introduction to statistical methods including probability, decision theory, confidence intervals, hypothesis testing, correlation, regression, and nonparametric techniques. May involve evening exams. Prereq: Math 160 or 170.

Stat **ID&WS301 Probability and Statistics** (3 cr). WSU Math and Stat 360. Intended for engineers, mathematicians, and physical scientists. Cr not given for both Stat 251 and 301 or for both Stat 271 and 301. Intro to sample spaces, random variables, statistical distributions, hypothesis testing, basic experimental design, regression, and correlation. Prereq: Math 175.

Stat **ID401 Statistical Analysis** (3 cr). WSU Stat 401. Concepts and methods of statistical research including multiple regression, contingency tables and chi-square, experimental design, analysis of variance, multiple comparisons, and analysis of covariance. Prereq: Stat 251, 271, or 301.

Stat **WS412 Biometry** (3 cr). WSU Stat 412.

Stat **WS-J420/WS-J520 Statistical Analysis of Qualitative Data** (3 cr). WSU Stat 420/520.

Stat **ID&WS422 Sample Survey Methods** (3 cr). WSU Stat 422. Simple random, systematic, stratified random, one and two stage cluster sampling; introduction to variable probability sampling and estimation of population size. Two lec and one 1-hr lab a wk. Prereq: Stat 251, 271, or 301.

Stat **ID428 Geostatistics** (3 cr). See GeoE 428.

Stat **433 Econometrics** (3 cr). See Econ 453.

Stat **437 Statistics for Business Decisions** (3 cr). See Bus 437.

Stat **ID&WS451 Probability Theory** (3 cr). See Math 451.

Stat **ID&WS452 Mathematical Statistics** (3 cr). See Math 452.

Stat **ID&WS-J453/ID&WS-J544 Stochastic Models** (3 cr). See Math J453/J538.

Stat **455 Applied Actuarial Science II** (0 cr). Review of mathematical and applied statistics in preparation for actuarial exam 2. Prereq: Stat 301 and Math 451-452.

Stat **456 Quality Management** (3 cr). See Bus 456.

Stat **499** (s) **Directed Study** (cr arr). Prereq: perm.

Stat **500 Master's Research and Thesis** (cr arr).

Stat **502** (s) **Directed Study** (cr arr). Prereq: perm.

Stat **503** (s) **Workshop** (cr arr). Prereq: perm.

Stat **504** (s) **Special Topics** (cr arr). Prereq: perm.

Stat **ID507 Experimental Design** (3 cr). WSU Stat 507. Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; confounding in factorial experiments; incomplete block designs; response surface methodology. Prereq: Stat 401.

Stat **ID&WS510 Regression** (3 cr). WSU Stat 535. Simple multiple and polynomial regression in matrix format; estimation, testing, and prediction; stepwise and other numerical methods, examination of residuals, weighted least squares and nonlinear models. Prereq: Stat 451 and Math 330.

Stat **ID514 Nonparametrics** (3 cr). WSU Stat 514. Conceptual development of nonparametric methods including one, two, and k-sample tests for location and scale, randomized complete blocks, rank correlation, and runs test; power, sample size, efficiency, and ARE. Prereq: Stat 401.

Stat **WS520 Statistical Analysis of Qualitative Data** (3 cr). See Stat J420/J520.

Stat **ID&WS521 Multivariate Analysis** (3 cr). WSU Stat 519. The multivariate normal, Hotelling's $T^2$, multivariate general linear model, discriminant analysis, covariance matrix tests, canonical correlation, and principle component analysis. Prereq: Stat 401.

Stat **525 Econometrics** (3 cr). See AgEc 525.

Stat **ID&WS533 Theory of Linear Models** (3 cr). WSU Stat 533. Theory of least squares analysis of variance models and the general linear hypothesis; small sample distribution theory for regression, fixed effects models, variance components models, and mixed models. Prereq: Stat 452 and Math 330.

Stat **WS539 Time Series** (3 cr). WSU Stat 516.

Stat **ID&WS540 Computer Intensive Methods** (3 cr). WSU Stat 536. Numerical stability, matrix decompositions for linear models, methods for generating pseudo-random variates, interative estimation procedures (Fisher scoring and EM algorithm), bootstrapping, scatterplot smoothers, Monte Carlo techniques including Monte Carlo integration and Markov chain Monte Carlo. Prereq: Stat 451, Math 330, and computer programming experience. (Alt/yrs)

Stat **ID&WS544 Stochastic Models** (3 cr). See Math J453/J538.

Stat **WS548-WS549 Statistical Theory I-II** (3 cr). WSU Math 568-569.

Stat **ID555 Statistical Ecology** (3 cr). See WLF 555.

Stat **ID&WS571 Reliability Theory** (3 cr). WSU Math 573. Statistical concepts; stochastic material strengths and lifetimes; strength versus safety analysis; reliability of coherent systems; maintenance models; complex systems. Prereq: Math 451. (Alt/yrs)

Stat **597** (s) **Practicum** (cr arr). Prereq: perm.

Stat **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Systems Engineering

**Ralph S. Budwig, Chair, Dept. of Mechanical Engineering (324I Engineering/Physics Bldg. 83844-0902; phone 208/885-6579).**

SysE **510 Introduction to Systems Engineering** (3 cr). Overview of topics of systems engineering; system specification, design, development and implementation; mathematical tools used in design and evaluation of systems, as they pertain to reliability, maintainability, and feasibility.

SysE **511 Applied Systems Engineering** (3 cr). Moves beyond a philosophical discussion of what systems engineering is and begins to address how systems engineering can be applied; 12 instructional modules, each addressing a different aspect of the systems engineering process; provides students with basic concepts and skill necessary for successful systems engineering application.

SysE **513 Systems Requirements** (3 cr). Requirements identification, analysis, and management essential to successful product development in complex, real world environments; advance planning, stakeholder inquiry, and system analysis that leads to technical business, and management requirements, which then drive system design and subsequent test and validation. Prereq: SysE 511.

SysE **515 Systems Design and Decision Analysis** (3 cr). Systems synthesis and design that are driven by requirements derived from mission analysis and customer needs; functional decomposition and allocation to system components that provide the basis for selection of design alternatives; design selection using trade studies and decisions made under uncertainty and risk. Prereq: SysE 511.

SysE **520 Probability and Statistics for Systems Engineers I** (3 cr). Applications of probability and statistics for univariate and multivariate distributions, including statistical testing and design of experiments; statistical requirements statements and verification methods; reliability, availability, and maintainability analyses, systems effectiveness; statistical requirements allocations and error budgets; introduction to system modeling and simulation. Prereq: Stat 401 or perm.

SysE **521 Probability and Statistics for Systems Engineers II** (3 cr). Theoretical system modeling and simulation including system model development; applications of orthonormal series modeling, least squares, linearized least squares, sequential filters, Kalman Filters, Extended Kalman Filters, Square-Root Filters, Maximum Likelihood Estimators, Maximum Entropy Filters, and tracking filters to design and analysis of broad, multidisciplinary systems problems. Prereq: SysE 520.

SysE **523 Applied Systems Optimization** (3 cr). Systems modeling and optimization techniques; modeling and decision making for deterministic and probabilistic systems; applications to problems taken from government, business, engineering, economics, and the natural and social sciences that are characterized by the need to allocate limited resources. Prereq: Math 275 or perm.

SysE **531 Safety Systems Engineering** (3 cr). Systematic approach to hazard identification, accident and risk analysis, and the principles and application of risk reduction during a project life cycle; current safety analysis processes used in the nuclear, aerospace, and defense industries; classical system safety analysis and techniques such as fault tree, event tree, dose to man, common cause analysis, FMEA, MORT, and HAZOP; skills using tools and approaches for designing, building, and operating complex systems acceptable risk.

SysE **535 Systems Engineering Management** (3 cr). Understanding the selection of appropriate technologies, utilization of the proper analytical tools, and application of the necessary resources to establish the systems engineering process, including the goals of design leadership, integration, and verification; application at the project level via the Systems Engineering Management Plan, work breakdown structures, schedules, and budgets; examination of the proper organizational environment through project and organization structures and the rapidly evolving world of process certification. Prereq: SysE 510 or 511 or perm.

# Teacher Education

**George F. Canney, Interim Director, Div. of Teaching, Learning, and Leadership (404B Educ. Bldg. 83844-3082; phone 208/885-6587).**

RELATED AREAS: For other offerings in the field of education, see adult, counselor, and technology education; agricultural education; art; business education; counseling; education; educational administration; family and consumer sciences; music; physical education; professional-technical education; and special education.

PREREQUISITE: For registration in upper-division courses in education, students must have been admitted to the teacher-education program and have a minimum GPA of 2.50, unless a higher average is stated as a prerequisite in the course description.

EDTE **200** (s) **Seminar** (cr arr). Prereq: perm.

EDTE **202 Introduction to Teaching Laboratory** (1 cr). Intro to the "world of teaching" through classroom observation and participation. Graded P/F. Two hrs of lab a wk. Prereq: sophomore standing. Prereq or coreq: ED 201.

EDTE **203** (s) **Workshop** (cr arr). Prereq: perm.

EDTE **204** (s) **Special Topics** (cr arr). Prereq: perm.

EDTE **299** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

EDTE **C302 The Child and Society** (3 cr). Child in the social milieu; family, social group, community, school; social pressures and conditioning upon the child and the education process.

EDTE **320 Foundations of Literacy Development** (4 cr). Research-based principles and techniques for teaching literacy; emphasis on content, methods, and materials. Prereq: ED 201.

EDTE **321 Literature for Children** (2 cr). Specific methods, research, curricula, and media in literature for children at each grade level including dramatization, storytelling, and use of literature in the elementary classroom. Prereq: EDTE 320. Coreq: courses in the social studies/literacy/arts education block.

EDTE **322 Integrated Language and Literacy** (2 cr). Approaches to the integration of reading, writing, speaking, and listening across the curriculum in diverse, collaborative, learner-centered communities. Prereq: EDTE 320. Coreq: courses in the social studies/literacy/arts education block.

EDTE **325 Elementary Art Education** (2 cr). Specific methods, research, curricula, and media in teaching elementary art. Coreq: courses in the social studies/literacy/arts education block.

EDTE **326 Elementary School Mathematics Education** (3 cr). Specific methods, research, curricula, and media in teaching elementary-school mathematics. Prereq: Math 235 and 236.

EDTE **327 Elementary Mathematics Education** (2 cr). Specific methods, research, curricula, and media in teaching elementary mathematics. Prereq: Math 235, 236. Coreq: courses in the mathematics/science/physical education block.

EDTE **328 Elementary Social Studies Education** (2 cr). Specific methods, research, curricula, and media in teaching elementary social studies. Coreq: courses in the social studies/literacy/arts education block.

EDTE **329 Elementary Science Education** (2 cr). Specific methods, research, curricula, and media in teaching elementary science. Coreq: courses in the mathematics/science/physical education block.

EDTE **336 Reading in the Elementary School** (4 cr). Basic principles and techniques for teaching reading in the elementary school; emphasis on content, methods, and materials.

EDTE **338 Children's Literature** (3 cr). For each grade level; story plays, dramatizations, effective reading and telling children's stories, and their place in elementary school. Prereq: EDTE 336 or perm.

EDTE **375 Elementary School Art Methods** (3 cr). Techniques, materials, and processes used in teaching elementary art; relationship of art to the elementary curricula.

EDTE **381 Elementary School Music Methods for Nonmajors** (3 cr). See MusT 381.

EDTE **400** (s) **Seminar** (cr arr). Prereq: perm.

EDTE **402 Practicum: Field Experience in Public School Settings** (1 cr, max 2). Coreq: EDTE 420.

EDTE **403** (s) **Workshop** (cr arr). Prereq: perm.

EDTE **404** (s) **Special Topics** (cr arr). Prereq: perm.

EDTE **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program. Additional projects/assignments reqd for grad cr.

EDTE **407 Elementary Foreign Language Methods** (3 cr). Observational experiences for preservice teachers combined with a classroom teaching practicum; discussion of teaching strategies for bilingual students, combining current research with valuable field experiences on which to base relevant/meaningful questions during the methods course. Prereq: students must be native-language speakers and/or have a teaching major or minor in foreign language.

EDTE **412 Multicultural/Bilingual Methods and Materials** (3 cr). Basic understanding of the issues surrounding the multicultural movement in today's school systems; introduction to a variety of different instructional programs designed to teach literacy skills to students from diverse cultural and linguistic backgrounds; particular emphasis on the historical, political, and multicultural perspectives of teaching diverse learners in the classroom. This course does not replace methods courses in education or ESL.

EDTE **J414/J514 Creativity and Critical Thinking Skills for Gifted and Talented Students** (3 cr). This course is designed to develop the knowledge of critical thinking and creativity; awareness of cognitive and affective characteristics of creativity and critical thinking skills and how to foster and assess those skills within the Gifted/Talented population. Additional research project reqd for grad cr.

EDTE **J415/J515 Social and Emotional Needs of Gifted/Talented Students** (3 cr). This course is designed to examine the social-emotional characteristics of G/T students and to explore the relationship between the intellect and emotions of this special population. Additional research project reqd for grad cr.

EDTE **J416/J516** (s) **College Teaching** (1-2 cr, max 2). Techniques for effective teaching at college level. Additional projects/assignments reqd for grad cr.

EDTE **J417/J517 Curriculum and Instruction for Gifted and Talented Education** (3 cr). This course is designed to develop knowledge of Instructional Management Strategies for Differentiation of Instruction, Assessment, Curriculum Design including models and technologies, talent areas and connection with Administrative (Curriculum) Plans in the field of G/T Education. Additional research project reqd for grad cr.

EDTE **418 Identifying and Correcting Mathematics Deficiencies** (3 cr). Study of teaching arithmetic including appropriate diagnostic-prescriptive strategies for correcting arithmetic deficiencies; microcomputers and calculators as instructional tools; consumer mathematics as an area of application.

EDTE **J419/J519 Foundations of Gifted/Talented Education** (3 cr). This course is designed to develop knowledge of the philosophy, rationale, and historical perspectives of Gifted and Talented education. Additional research project reqd for grad cr.

EDTE **420 Language, Learning, and Literacy Development** (3 cr). Understanding of literacy development, the connections between language and learning, and how to support the use of reading, writing, listening, and talking to explore literature and other content areas in a diverse, collaborative, learning-centered community. Prereq: EDTE 338. Coreq: EDTE 402 or perm.

EDTE **421 Elementary School Social Studies Methods** (2-3 cr). Specific methods, research, curricula, and media in teaching elementary-school social studies.

EDTE **J422/J522 Early Childhood and Kindergarten Education** (3 cr). Historical development, theoretical and practical applications in early childhood and kindergarten education. Additional projects/assignments reqd for grad cr. Two lec and 3-6 hrs of lab a wk.

EDTE **423 Integrated Literacy in the Classroom** (1 cr). Facilitate intern teachers' understanding of literacy development and applications of appropriate literacy methods and materials. Interns will be expected to implement various approaches to the integration of reading, writing, speaking and listening and the selection of appropriate literature to support the content. Prereq: social studies/literacy/arts education block. Coreq: EDTE 484.

EDTE **425 Elementary Art in the Classroom** (1 cr). Implementation of methods, research, curricula, and media in teaching elementary art. Prereq: EDTE 325. Coreq: EDTE 484.

EDTE **427 Elementary Mathematics in the Classroom** (1 cr). Implementation of methods, research, curricula, and media in teaching elementary mathematics. Prereq: EDTE 327. Coreq: EDTE 484.

EDTE **428 Elementary Social Studies in the Classroom** (1 cr). Implementation of methods, research, curricula, and media in teaching elementary social studies. Students will teach social studies to elementary students 2-3 hrs a wk as part of the internship experience. Prereq: EDTE 328. Coreq: EDTE 484.

EDTE **429 Elementary Science in the Classroom** (1 cr). Implementation of methods, research, curricula, and media in teaching elementary science. Prereq: EDTE 329. Coreq: EDTE 484.

EDTE **432 Secondary Social Studies Methods I** (2 cr). Specific methods, research, curricula, and media in teaching Secondary Social Studies Methods.

EDTE **433 Secondary Science Methods I** (2 cr). Specific methods, research, curricula, and media in teaching Secondary Science Methods.

EDTE **434 Secondary Mathematics Methods I** (2 cr). Specific methods, research, curricula, and media in teaching Secondary Mathematics Methods.

EDTE **436 Secondary Art Methods I** (2 cr). Specific methods, research, curricula, and media in teaching Secondary Art Methods.

EDTE **437 Secondary Foreign Language Methods I** (2 cr). Specific methods, research, curricula, and media in teaching Secondary Foreign Language

EDTE **440 Secondary English Methods I** (2 cr). Specific methods, research, curricula, and media in teaching Secondary English Methods.

EDTE **441 Secondary English Methods II** (2 cr). Implementation of methods, research, curricula, and media in teaching Secondary English Methods. Prereq: EDTE 440. Coreq: EDTE 485

EDTE **442 Secondary Social Studies Methods II** (2 cr). Implementation of methods, research, curricula, and media in teaching Secondary Social Studies Methods. Prereq: EDTE 432; Coreq: EDTE 485.

EDTE **443 Secondary Science Methods II** (2 cr). Implementation of methods, research, curricula, and media in teaching Secondary Science Methods. Prereq: EDTE 433. Coreq: EDTE 485

EDTE **444 Elementary School Science Methods** (2-3 cr). Specific methods, research, curricula and media in teaching elementary-school science.

EDTE **446 Secondary Art Methods II** (2 cr). Implementation of methods, research, curricula, and media in teaching Secondary Art Methods. Prereq: EDTE 436; Coreq: EDTE 485.

EDTE **447 Secondary Foreign Language Methods II** (2 cr). Implementation of methods, research, curricula, and media in teaching Secondary Foreign Language. Prereq: EDTE 437; Coreq: EDTE 485.

EDTE **454 Secondary Mathematics Methods II** (2 cr). Implementation of methods, research, curricula, and media in teaching Secondary Mathematics Methods. Prereq: EDTE 434. Coreq: EDTE 485

EDTE **J463/J563 Literacy Methods for Content Learning** (3 cr). Theory of and practical strategies for extending and reinforcing student learning of subject matter through reading and writing. Additional projects/assignments reqd for grad cr. Prereq: ED 302 or perm.

EDTE **466 Literacy Assessment and Intervention** (3 cr). Various assessment issues and procedures appropriate for monitoring student progress in reading and writing in the classroom; instructional methods for assisting readers at-risk. Prereq: EDTE 336 or 463.

EDTE **473 International Education Scene** (1-9 cr, max 9). Study-tour conducted by a UI faculty member to observe selected education systems and procedures in foreign countries. One cr a wk.

EDTE **ID&WS474 Secondary School Foreign Language Methods** (3 cr). WSU For L 474. Specific methods, research, curricula, and media in teaching secondary school foreign language. Prereq: ED 302 , EDTE 463, or perm. (Alt/yrs)

EDTE **475 Secondary School English Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school English. Prereq: ED 302, EDTE 463, Engl 401, 441.

EDTE **476 Secondary School Social Studies Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school social studies. Prereq: ED 302, EDTE 463, or perm.

EDTE **477 Secondary School Science Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school science. Prereq: ED 302, EDTE 463, or perm.

EDTE **478 Secondary School Mathematics Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school mathematics. Prereq: ED 302, EDTE 463, or perm.

EDTE **479 Secondary School Art Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary-school art. Prereq: EDTE 463 or perm. (Alt/yrs)

EDTE **484** (s) **Elementary Internship** (1-14 cr, max 28). Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Prereq: perm of division. Coreq: integrated course work and ED 401.

EDTE **485** (s) **Secondary Internship** (1-14 cr, max 28). Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Prereq: perm of division. Coreq: integrated course work and ED 401.

EDTE **499** (s) **Directed Study** (cr arr). Prereq: perm.

EDTE **500 Master's Research and Thesis** (cr arr).

EDTE **501** (s) **Seminar** (cr arr). Prereq: perm.

EDTE **502** (s) **Directed Study** (cr arr). Prereq: perm.

EDTE **503** (s) **Workshop** (cr arr). Prereq: perm.

EDTE **504** (s) **Special Topics** (cr arr). Prereq: perm.

EDTE **505** (s) **Professional Development** (cr arr). See EDTE J405/J505.

EDTE **507 Supervision of Instruction** (3 cr). Preparation of supervisors to aid teachers in the improvement of instruction.

EDTE **508 Standards-Based Curriculum in Science** (3 cr). Preparation of practicing teachers to implement standards-based curriculum and assessment; focus on teacher's discipline area of certification; examination and development of curriculum, inquiry strategies, assessment strategies, and teaching strategies aligned with the science standards.

EDTE **510 Educational Perspectives: Theories, Policies, and Practices** (3 cr). Overview of educational issues historically grounded and currently relevant to policies and practices in school settings; examination of how beliefs and practices are constructed and challenged from various philosophical frameworks applied to knowledge bases, administrative models, and developmental theories of learning.

EDTE **511 Planning and Administering the Curriculum** (3 cr). Same as EdAd 511. Management skills, concepts, and information needed to administer a district-wide curriculum; audits and other evaluations as part of the curriculum or program development cycle; duties and responsibilities of curriculum developers from a standpoint of several possible roles and assignments; criteria and basic concepts for an audit, including essential curriculum management components, alignment, quality control, standards, and data sources.

EDTE **512 Program Development and Evaluation** (3 cr). Types of instructional systems, systematic educational program development; evaluation methods, issues in measurement and evaluation design.

EDTE **513 History of Educational Thought** (3 cr). Writings that have influenced educational theory and practice.

EDTE **514 Creativity and Critical Thinking Skills for Gifted and Talented Students** (3 cr). See EDTE J414/J514.

EDTE **515 Social and Emotional Needs of Gifted/Talented Students** (3 cr). See EDTE J415/J515.

EDTE **516** (s) **College Teaching** (1-2 cr, max 2). See EDTE J416/J516.

EDTE **517 Curriculum and Instruction for Gifted and Talented Education** (3 cr). See EDTE J417/J517.

EDTE **518 Capstone: Application of Educational Theories** (3 cr). Consolidation of knowledge of educational theories and best practices to facilitate professional goal-setting, program enhancement, and scholarly pursuits.

EDTE **519 Foundations of Gifted/Talented Education** (3 cr). See EDTE J419/J519.

EDTE **521 Advanced Language Arts** (3 cr). Current research in instruction of the language arts, the reading/writing/listening/speaking connection, and teaching/learning; integrated language arts curriculum; assessment/evaluation strategies. Prereq: EDTE 420 or equiv or perm.

EDTE **522 Early Childhood and Kindergarten Education** (3 cr). See EDTE J422/J522.

EDTE **524 Models of Teaching** (3 cr). Examination of information processing, social interaction, personal, and behavioral models of teaching; emphasis on practical implementation of these models in teaching situations.

EDTE **526 Advanced Educational Psychology** (3 cr). Examination of selected psychological theories as applied to classroom management, values education, instructional and motivational strategies, learning and cognitive styles, gender differences, and related educational research.

EDTE **527 Instructional Theory into Practice** (3 cr). Applications of instructional theory to the areas: teaching to an objective; diagnostic and prescriptive teaching; teaching to enhance motivation; reinforcement, transfer, retention, and rate and degree of learning; enhancement of pupil self-concept; and critical decisions underlying such techniques.

EDTE **528 Seminar in Middle School/High School I** (2 cr). This course will develop the students knowledge of the organizational structure, history, research and philosophy of the American Middle School and High School. Coreq: EDTE 485

EDTE **529 Seminar in Middle School/High School II** (2 cr). This course will further develop the students knowledge, dispositions and performances of the teacher in the Middle School and High School setting. Prereq: EDTE 528; Coreq: EDTE 485.

EDTE **530 Ethical Leadership and Law in Education** (3 cr). Ethical and legal principles undergirding schools in the U.S.; statutory and case laws focusing on Idaho and surrounding states.

EDTE **551 Children's Literature and Literacy Strategies Across the Curriculum** (3 cr). The course will examine various genres of literature appropriate for children and methods of increasing literacy skills through the use of these books. Identification and integration of tradebooks in content areas with multiple strategies to increase reading comprehension will be a focus of the course. Prereqs: EDTE 320 and 338.

EDTE **552 Idaho Comprehensive Literacy Course** (3 cr). May not receive credit for both EDTE 552 and EDTE 553-555. The three core literacy standards required under Idaho law for teachers and administrators K-8 certification: language learning and literacy development, reading comprehension, instruction, reading assessment, and instructional intervention.

EDTE **553 Idaho Comprehensive Literacy Course: Language Learning and Literacy Development** (1 cr). May not receive credit for both EDTE 553 and 552. Refinement of teachers' knowledge of both the content and approaches for teaching decoding, morphology, and fluency as a part of a comprehensive, balanced reading program.

EDTE **554 Idaho Comprehensive Literacy Course: Reading Comprehension Research and Best Practices** (1 cr). May not receive credit for both EDTE 554 and 552. Review of the research base supporting reading comprehension instruction.

EDTE **555 Idaho Comprehensive Literacy Course: Reading Assessment Diagnosis and Remediation** (1 cr). May not receive credit for both EDTE 555 and 552. Enhancement of teachers' knowledge of reading assessment procedures and methods for remediating students' reading difficulties.

EDTE **ID&WS558 Writing Institute: NW Inland Writing Project** (6 cr). WSU Engl 592-593. Theory, research, and practice of kindergarten through college writing instruction including prewriting, drafting, revising, editing, publishing, grammar, mechanics, writing across the curriculum, error analysis, writing to learn; focus on writing for a variety of audiences and purposes (transactional, poetic, expressive); develops participant's own writing ability and ability to present in-service workshops for school districts. Four lec and four hrs of lab a wk. Prereq: Engl 401 or EDTE 420 or equiv or perm.

EDTE **560 Reading with a Second Language Learner** (3 cr). Participants examine the specific needs of second language learners in relation to reading instruction. A general foundation of L2 acquisition will be included in the course. Prereq: EDTE 322 or equivalent.

EDTE **561 Readings in Literacy** (3 cr). Course examines current issues and practices in literacy instruction, with emphasis on the research bases underlying these issues and practices. Students read current studies and professional writing and share their understandings of these sources in weekly discussions augmented by instructor and guest presentations.

EDTE **562 Orchestrating the Classroom Literacy Program** (3 cr). Course examines the basis for establishing and operating classroom literacy programs – reading, writing, spelling, listening and speaking. Numerous organizational models are presented and critiqued.

EDTE **563 Literacy Methods for Content Learning** (3 cr). See EDTE J463/J563.

EDTE **564 Advanced Children's Literature** (3 cr). Contemporary issues in children's literature; theoretical and research bases for current practice; reading children's literature from multiple perspectives; advanced study of genres, resources, strategies, and critical thinking for using books to better understand our multicultural society. Prereq: EDTE 338.

EDTE **565 Linguistics, Literacy, and Brain Function** (3 cr). Course examines the psycholinguistic processes of literacy acquisition and learning in conjunction with recent physiological brain research. Prereq: EDTE 320 and 466.

EDTE **566 Analysis and Correction of Reading Difficulties** (3 cr). Course examines causes of reading and writing difficulties and various methods for remediating those difficulties. Students administer a variety of literacy assessments, norm referenced, criterion referenced and informal. The emphasis is on learning to administer and interpret the results from these assessments in order to plan and then implement an effective intervention program for students having difficulty learning to read and write fluently.

EDTE **568 Literacy Applications Through Computer Technology** (3 cr). Examines the use of technology, especially computer software, email, and internet/web resources for developing classroom literacy programs and units. The course explores means for evaluating literacy software, support materials, and student learning via computer technology.

EDTE **572 Measurement and Evaluation** (3 cr). Improvement of testing, examination, and evaluation in schools; practice in making, giving, scoring, and interpreting tests; use of results in counseling.

EDTE **581 Systematic and Objective Analysis of Instruction** (4 cr). Supervision as a change process and analysis of supervisory cycle; application of supervisory cycle in K-12 classroom situations; designed to improve individual skill in analysis of instruction and to relate theory to practice. Enrollment limited to 16 per section. Graded P/F.

EDTE **597** (s) **Practicum** (cr arr). Graded P/F. Prereq: perm.

EDTE **598** (s) **Internship** (cr arr). Currently offered in public school teaching and college teaching. Graded P/F. Prereq: perm.

EDTE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

EDTE **600 Doctoral Research and Dissertation** (cr arr).

# Theatre Arts

**J. David Lee-Painter, Chair, Dept. of Theatre Arts (118 Shoup Hall 83844-3074; phone 208/885-6465).**

**Vertically-related courses in this subject field are:** TheA 105-106-305-306-372-373-407-408; TheA 103-104-201-202.

TheA **100 Freshman Theatre Seminar** (3 cr) (TheA 210). Course explores collaborative theatrical processes and the roles and responsibilities of theatre practitioners. Focus is also given to discipline-based research and writing methods. Prereq: Theatre majors and minors only.

TheA **101 Introduction to the Theatre** (3 cr). *May be used as core credit in J-3-d.* For nonmajors. Building an appreciation for theatre as an art form through understanding the creative process of the playwright, the director, the designer, and the actor. Attendance at theatre productions reqd.

TheA **103 Theatre Technology I** (4 cr). Intro to theatre production spaces, shop tools, construction materials, and stage equipment; theories and methods used in lighting and in the construction of scenery. Three lec and six hrs of lab a wk.

TheA **104 Theatre Technology II** (4 cr). Methods of costume construction techniques; intro to masks, sewing, millinery, and costume craft skills. Three lec and six hrs of lab a wk.

TheA **105-106 Basics of Performance** (3 cr). Intro to performance; techniques of relaxation, observation, and justification; work in improvisation, sensory exploration, image-making, and beginning textual analysis; initial monologue and scene performance. One lec and 2 hrs of lab a wk. Prereq for 106: TheA 105 or perm.

TheA **110 Convocation** (0 cr). One 1-hr weekly seminar.

TheA **125 Summer Theatre I** (2-4 cr, max 4). Theatre production, including public presentation of several plays. Max 10 cr in TheA 125 and 395 combined. Prereq: perm of dept.

TheA **150 Performance Lab I** (1 cr). Fundamentals of voice, speech, and movement techniques for the stage. Two hrs of lab a wk.

TheA **151 Performance Lab II** (1 cr). Continuation of TheA 150; additional techniques in voice, speech, and movement for the stage. Two hrs of lab a wk.

TheA **190** (s) **Theatre Practice** (1 cr, max arr). Open to nonmajors. Practical experience in all aspects. Six hrs of lab a wk.

TheA **200** (s) **Seminar** (cr arr). Prereq: perm.

TheA **201 Scene Design I** (3 cr). Development of basic skills in visualization, period research, graphic techniques, and script interpretation in scenery.

TheA **202 Costume Design I** (3 cr). Costume design skills including script/character analysis, fabric choices, design process, period research, and drawing/painting skills.

TheA **203** (s) **Workshop** (cr arr). Prereq: perm.

TheA **204** (s) **Special Topics** (cr arr). Prereq: perm.

TheA **205 Lighting Design I** (3 cr). Basic equipment, lighting methods, and theory for theatrical production; basic drafting of realized and hypothetical productions.

TheA **207 Theatrical Make-up** (3 cr) (TheA 102). Creation of the make-up mask through sculpting with paint. Limited to 20 students. Two lec and 2 hrs of lab a wk. Prereq: perm.

TheA **299** (s) **Directed Study** (cr arr). Prereq: perm.

TheA **305 Intermediate Acting** (3 cr). Exploration of Stanislavsky System focused in work on sense and emotional memory, inner monologue, and imagery techniques; emphasis on group improvisation and theatre games; work in action and scene study; performances of selected scenes and monodramas. One lec and 3 hrs of lab a wk. Prereq: TheA 105-106.

TheA **306 Intermediate Acting** (3 cr). Studies in American method acting as exemplified by its leading practitioners (Strasberg, Hagen, and Meisner); textual analysis and individual acting problems; continuing emphasis in scene preparation. One lec and 3 hrs of lab a wk. Prereq: TheA 305 or perm.

TheA **311 Tailoring Techniques** (3 cr). Men's and women's contemporary & traditional tailoring techniques for costume, stage & apparel. Prereq: TheA 104 or perm, and FCS 224.

TheA **320 Theatre Management** (2 cr). Exploration of stage management and standard management practices relating to theatre production and business, funding, and public relations.

TheA **350 Performance Lab III** (cr arr). Continuation of TheA 151; advanced techniques in voice, speech, and movement for the stage. Two hrs of lab a wk. Prereq: TheA 150 and 151 or perm.

TheA **361 Technical Direction** (3 cr). Technical direction and planning for single and multiple set theatre productions; includes shop and personnel management techniques, drafting, budgets, scheduling, and organization.

TheA **371 Play Analysis** (3 cr). Critical intro to plays as drama and theatre; an approach to tragic and comic genres; major dramatists of the 20th century culminating in an analysis of contemporary theatre styles.

TheA **WS381 Creative Drama** (3 cr). WSU Theat 464.

TheA **390** (s) **Theatre Practice** (cr arr). Open to nonmajors. Practical experience in all aspects of theatre production and performance.

TheA **395 Summer Theatre II** (2-8 cr, max 8). Continuation of TheA 125. Max 10 cr in TheA 125 and 395 combined. Prereq: perm of dept.

TheA **400** (s) **Seminar** (cr arr). Prereq: perm.

TheA **403** (s) **Workshop** (cr arr). Prereq: perm.

TheA **404** (s) **Special Topics** (cr arr). Prereq: perm.

TheA **405 Individual Instruction in Performance** (cr arr). Individualized coaching in performance. One hr of lab a wk per cr. Prereq: perm of dept.

TheA **406 Design Studio** (cr arr). Advanced design studio. Prereq: TheA 201, 202, and 205.

TheA **J410/J510 Costume Design II** (3 cr, max 12). Emphasis on developing characterization, stylization, and fabric choice; explore advanced rendering techniques; continuation of portfolio development. Additional projects/assignments reqd for grad cr. Three lec and 1 hr of lab a wk. Prereq: TheA 202 or perm.

TheA **425 BFA Acting Studio** (3 cr, max arr). Rigorous study and practice in performance. Areas of specialization may include: Shakespeare, Devising, Commedia del'arte, Period Styles, Asian Theatre, Animals, Realism, Comedy. The course will be repeated each semester by BFA candidates. Prereq: Acceptance into BFA prog.

TheA **463 Costume Construction** (3 cr). Development of two-dimensional rendering into a three-dimensional realized costume; emphasis on advanced construction techniques, fabric selection, and costume crafts. Prereq: TheA 104 or perm.

TheA **464 Scenographic Techniques** (3 cr). Practical survey of graphics used in design and execution of scenery for the stage, including drafting, perspective, front and rear elevations, painters elevations, and properties design and drafting. Four hrs of lab a wk. Prereq: TheA 202.

TheA **465 Advanced Scene Design** (3 cr). Development of a conceptual approach to design through assorted design projects. Prereq: TheA 464.

TheA **J468/J568 Theatre History I** (3 cr). The comprehensive survey of the major theatrical trends, theorists, and practitioners from the Golden Age of Greece until the early 19$^{th}$ Century. Additional projects/assignments reqd for grad cr. Prereq: TheA 371 or perm of dept.

TheA **J469/J569 Theatre History II** (3 cr). The comprehensive survey of the major theatrical trends, theorists, and practitioners from 1875 to the present contemporary theatre scene. Additional projects/assignments reqd for grad cr. Prereq: TheA 371 or perm of dept.

TheA **J471-J472/J571-J572 Directing** (3 cr). TheA J471/J571: preparation of a play from casting to performance. TheA J472/J572: staging and interpretation of a play; developing a production concept; coaching actors. Additional projects/assignments reqd for grad cr. Three lec and one hr of lab a wk. Prereq or coreq for TheA J471/J571: TheA 305. Prereq or coreq for TheA J472/J572: upper-division acting course at 300/400 level.

TheA **J484/J584 Advanced Stage Lighting** (3 cr). Advanced lighting design theories and practice through design of assorted productions in realistic drama, dance, arena, thrust, and mystical theatre. Additional projects/assignments reqd for grad cr. Prereq: TheA 205 or perm.

TheA **498** (s) **Internship** (cr arr). Prereq: perm.

TheA **499** (s) **Directed Study** (cr arr). Prereq: perm.

TheA **500 Master's Research and Thesis** (cr arr).

TheA **501** (s) **Seminar** (cr arr). Prereq: perm.

TheA **502** (s) **Directed Study** (cr arr). Prereq: perm.

TheA **503** (s) **Workshop** (cr arr). Prereq: perm.

TheA **504** (s) **Special Topics** (cr arr). Prereq: perm.

TheA **507 Acting Shakespeare** (3 cr). See TheA J407/J507.

TheA **508 Styles of Acting** (3 cr). See TheA J408/J508.

TheA **509 Summer Theatre III** (2-8 cr, max 8). Theatre production, including public presentation of several plays; emphasis on responsibilities of the grad student including assisting the director, serving as crewhead, and acting. Prereq: 20 cr in the theatre arts and perm of dept.

TheA **510 Costume Design II** (3 cr, max 12). See TheA J410/J510.

TheA **511** (s) **MFA Acting Studio** (2 cr, max 18). Advanced individual study in performance.

TheA **512** (s) **MFA Directing Studio** (2 cr, max 18). Advanced individual study in directing, including work in staging, styles, and interpretation.

TheA **513** (s) **MFA Design Studio** (2 cr, max 18). Advanced individual study in all areas of theatrical design with emphasis on portfolio development. One lec and 2 hrs of lab a wk.

TheA **514** (s) **MFA Production Studio** (2 cr, max 18). Advanced individual study in all areas of technical theatre production and management with emphasis on portfolio development. One lec and 2 hrs of lab a wk.

TheA **515 MFA Jury/Portfolio Review** (1 cr, max arr). Preparation and evaluation of performance monologues and design portfolios. Coreq: MFA studio courses.

TheA **516 MFA Graduate Seminar** (2 cr, max arr). An in-depth, rigorous, exploration of theatrical research and collaboration pedagogy and methodologies within the larger context of the artistic, creative process. Two semesters required, course may be repeated. Prereq: Acceptance into MFA prog.

TheA **520 Advanced Directing** (3 cr). Techniques and styles of major 20th-century directors; work in directing genres of tragedy, drama, melodrama, comedy, and the absurd.

TheA **522 Directing the Period Play** (3 cr). Interpretation and staging of classical texts in major dramatic periods; social and cultural view of each period.

TheA **525 MFA Acting Studio** (3 cr, max arr). Rigorous study and practice in performance. Areas of specialization may include: Shakespeare, Devising, Commedia del'arte, Period Styles, Asian Theatre, Animals, Realism, Comedy. The course will be repeated each semester by MFA candidates. Prereq: Acceptance into MFA prog.

TheA **535 Production Design** (3 cr, max 12). Design responsibility for a mainstage production. Prereq: perm of dept.

TheA **567-568 The Theatre** (3 cr). See TheA J467-J468/J567-J568.

TheA **569 Modern Theatre** (3 cr). See TheA J469/J569.

TheA **571-572 Directing** (3 cr). See TheA J471-J472/J571-J572.

TheA **584 Advanced Stage Lighting** (3 cr). See TheA J484/J584.

TheA **596 MFA Exit Project** (3 cr). Culminating creative project for MFA candidates. Prereq: perm of dept.

TheA **597** (s) **Practicum** (cr arr). Prereq: perm.

TheA **598** (s) **Internship** (cr arr). Prereq: perm.

TheA **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

# Veterinary Science

**Richard A. Battaglia, Head, Dept. of Animal and Veterinary Science (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; email susanf@uidaho.edu).**

Courses in this subject field that have a WS prefix are open only to students who have veterinary science graduate student status or by permission of the director of the Idaho faculty of the WOI Regional Program in Veterinary Medical Education.

VS **499** (s) **Directed Study** (cr arr). Prereq: perm.

VS **500** **Master's Research and Thesis** (cr arr).

VS **501** (s) **Seminar** (cr arr). Prereq: perm.

VS **502** (s) **Directed Study** (cr arr). Prereq: perm.

VS **504** (s) **Special Topics** (cr arr). Prereq: perm.

VS **512** **Principles of Comparative Pathology** (4 cr). Gross and micro pathology, histological techniques, neoplasia. Prereq: Biol 324, 427 or equiv, or perm. (Alt/yrs)

VS **WS587** **Hospital Rotation** (3 cr, max 6). WSU V MS 587.

VS **WS592** **Advances in Immunobiology** (1 cr, max arr). WSU V Mic 592.

VS **598** (s) **Internship** (cr arr). Prereq: perm.

# Veterinary Science

**Richard A. Battaglia, Head, Dept. of Animal and Veterinary Science (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; email susanf@uidaho.edu).**

Courses in this subject field that have a WS prefix are open only to students who have veterinary science graduate student status or by permission of the director of the Idaho faculty of the WOI Regional Program in Veterinary Medical Education.

VS **499** (s) **Directed Study** (cr arr). Prereq: perm.

VS **500** **Master's Research and Thesis** (cr arr).

VS **501** (s) **Seminar** (cr arr). Prereq: perm.

VS **502** (s) **Directed Study** (cr arr). Prereq: perm.

VS **504** (s) **Special Topics** (cr arr). Prereq: perm.

VS **512** **Principles of Comparative Pathology** (4 cr). Gross and micro pathology, histological techniques, neoplasia. Prereq: Biol 324, 427 or equiv, or perm. (Alt/yrs)

VS **WS587** **Hospital Rotation** (3 cr, max 6). WSU V MS 587.

VS **WS592** **Advances in Immunobiology** (1 cr, max arr). WSU V Mic 592.

VS **598** (s) **Internship** (cr arr). Prereq: perm.

# Wildlife Resources

**George W. LaBar, Head, Dept. of Fish and Wildlife Resources (105 CNR Bldg. 83844-1136; phone 208/885-6434).**

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

WLF **102 The Wildlife Profession** (1 cr). Overview of the field of wildlife conservation including kinds of professional positions, duties of wildlifers, employment opportunities, and educational preparation. (Fall only)

WLF **200** (s) **Seminar** (cr arr). Prereq: perm.

WLF **203** (s) **Workshop** (cr arr). Prereq: perm.

WLF **204** (s) **Special Topics** (cr arr). Prereq: perm.

WLF **221 Natural Resources Ecology** (3 cr). Same as For/Rnge 221. Principles of plant and animal ecology. Major topics covered in the course include the physical environment, how organisms interact with each other and their environment, evolutionary processes, population dynamics, communities, energy flow and ecosystems, conservation biology, and human influences on ecosystems. Recommended preparation: introductory botany and zoology (i.e. Biol 213). Prereq: introductory biology (i.e. Biol 111 or 112), or perm.

WLF **290 Fish and Wildlife Ecology, Management, and Conservation** (3 cr). Same as Fish 290. Open to non-majors only. Application of biological ecological principles and concepts to conservation and management of fish and wildlife populations and their habitats.

WLF **299** (s) **Directed Study** (cr arr). Prereq: perm.

WLF **302 Wildland Field Ecology** (2 cr). Same as Fish/ForP/For/Rnge/RRT 302. Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235, and For/Rnge 221 or Biol 314. (Summer only)

WLF **314 Wildlife Ecology I** (3 cr). Ecology and natural history of birds, mammals, reptiles, and amphibians. Prereq: For/Rnge 221 or Biol 314. (Fall only)

WLF **315 Wildlife Ecology I Laboratory** (1 cr). Techniques associated with wildlife research and local habitats and areas where wildlife species are present. Three hrs of lab a wk; field exercises. Prereq or coreq: WLF 314. (Fall only)

WLF **316 Wildlife Ecology II** (4 cr). Application of principles of ecology to conservation and management of wildlife in natural and altered habitats. Three lec and one lab a wk; three days of field trips. Prereq: WLF 314 and 315 or perm. (Spring only)

WLF **396 Wilderness Research Internship** (3 cr). Same as RRT 396. Nine-week summer internship at UI Wilderness Field Station, located at Taylor Ranch in the heart of the Frank Church River of No Return Wilderness of central Idaho; research honorarium awarded; lodging and transportation to field station provided. Enrollment limited to 2-3 students based on available funding. Prereq: competitive selection by faculty committee based on research proposal, GPA, and resume; Jr standing.

WLF **398** (s) **Renewable Natural Resources Internship** (cr arr). Same as Fish/For/Rnge 398. Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

WLF **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

WLF **403** (s) **Workshop** (cr arr). Prereq: perm.

WLF **404** (s) **Special Topics** (cr arr). Prereq: perm.

WLF **WS419** (s) **Topics in Natural Resource Sciences** (1-3 cr, max 9). WSU NATRS 419.

WLF **WS-J431/WS-J531 Wildlife Nutrition** (3 cr). WSU NATRS 431/531. Nutritional requirements and interactions of wildlife populations.

WLF **ID&WS440 Conservation Biology** (3 cr). WSU NATRS 450. Patterns of biological diversity; factors producing changes in diversity; values of diversity; management principles applied to small populations, protected areas, landscape linkages, biotic integrity, restoration, legal issues, and funding sources. Prereq: For/Rnge 221 or Biol 314 or perm.

WLF **441 Behavioral Ecology** (3 cr). Principles of behavioral ecology in animals (vertebrates and invertebrates); using extensive theoretical and empirical findings in ethology, sociobiology, evolution, and ecomorphology to focus on questions pertaining to animal

adaptation and learning; scientific literature in behavioral ecology; link between behavioral ecology and wildlife conservation and management. Prereq: Biol 314 or For/Rnge 221, or perm. (Alt/yrs; spring only)

WLF **443 Multi-Species Interactions** (3 cr). Compare and contrast competitive, host-parasite, predator-prey, and plant-herbivore interactions in terms of evolution, behavior, and population dynamics. Prereq: WLF 314 or equivalent. (Alt/yrs; spring only)

WLF **ID445 Nongame Management** (2 cr). WSU Zool 445. Review of principles, methodology, and concepts applied to management and conservation of nongame wildlife in relation to current land-use practices. Prereq: Wlf 482 and Biol 483, or perm. (Spring only)

WLF **446 Diseases of Wild Birds and Mammals** (2 cr). Same as Fish 446. Epidemiology, pathology, treatment, and control. Prereq: perm. (Alt/yrs)

WLF **448 Fish and Wildlife Population Ecology** (4 cr). Attributes, natality, mortality, growth forms, fluctuations, and regulation of fish and wildlife populations. Three lec and one lab a wk. Prereq: Stat 251; and Fish 316, WLF 316, or course in vertebrate ecology. (Fall only)

WLF **470 Interdisciplinary Natural Resource Planning** (3 cr). Same as Fish/ForP/For/Rnge/RRT 470. Examines how ecological and social sciences are interrelated and how they influence natural resource decisions; students learn how to work effectively in teams to make sound management decisions and communicate those decisions to a variety of constituents. Three hrs of lec and three hrs of recitation a wk; one 2-day field trip. Prereq: Sr standing, For/RRT 235, For/Rnge 221, For/Rnge/ForP/RRT/WLF/Fish 302 or RRT 306; or perm.

WLF **482 Ornithology** (4 cr) (Zool 482). Evolution, systematics, distribution, identification, and biology of birds, including current conservation efforts. Requires two days of field trips. Prereq: Biol 112 (Spring only)

WLF **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Same as Fish/ForP/For/Rnge/RRT 485. Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

WLF **492 Wildlife Management** (4 cr). Review of social and biological context for current practice of wildlife management. Three lec and one lab a wk; two days of field trips. Prereq: Biol 341 or equiv, WLF 316, and WLF 448. Prereq or coreq: 2 courses from the following: Wlf 482, Biol 481 or Fish 411, Biol 483, and Biol 484. (Spring only)

WLF **493 Environmental Law** (2 cr). Same as Rnge 493. Laws governing resource administration and environmental impacts. Prereq: Sr standing. (Fall only)

WLF **495** (s) **Wildlife Seminar** (1-2 cr). Discuss integrating biological, social, political, economic, and philosophic aspects of wildlife problems. (Fall only)

WLF **497 Senior Thesis** (1-3 cr, max 6). Same as Fish/ForP/For/Rnge/RRT 497. Open only to majors in wildlife resources. Preparation of thesis, exhibition, video, computer program, multimedia program, or other creative presentation based on research conducted under the guidance of a faculty mentor. Prereq: cumulative GPA of at least 3.2 in all college courses, completion of at least 90 credits, and permission of a faculty mentor.

WLF **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: Sr standing, GPA 2.5, and perm.

WLF **500 Master's Research and Thesis** (cr arr).

WLF **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

WLF **502** (s) **Directed Study** (cr arr). Prereq: perm.

WLF **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

WLF **504** (s) **Special Topics** (cr arr). Prereq: perm.

WLF **515 Advanced Topics in Conservation Biology** (2 cr). Development of a depth of understanding of the basic principles of conservation biology through study of case histories of endangered species recovery efforts; political as well as biological and economic aspect of recovery efforts through a series of lectures and discussions with exposure to new developments in the fast evolving field of conservation biology; emphasis on issues with which professors or visiting lecturers have personal research and experience. (Alt/yrs; spring only)

WLF **WS519** (s) **Advanced Topics in Natural Resources** (1-3 cr, max 6). WSU NATRS 519.

WLF **ID520 Human Dimensions of Wildlife Management** (2 cr). Same as RRT 520. WSU NATRS 521. Exploration of elements involved in the management of wildlife for nonconsumptive activities, impacts of such activities on wildlife, the role of national parks and protected areas in providing wildlife viewing opportunities, and public attitudes toward wildlife species. (Alt/yrs; spring only)

WLF **WS531 Wildlife Nutrition** (3 cr). See WLF WS-J431/WS-J531.

WLF **540 Conservation Genetics** (3 cr). Basic principles of population genetics and phylogenetics and their applications to the field of conservation genetics and natural resource management; case studies and examples from current literature; topics include genetic diversity, inbreeding, population structure, gene flow, genetic drift, molecular phylogenetics, and hybridization. (Alt/yrs; fall only)

WLF **541 Advanced Population Biology** (2 cr). Readings and discussion of current theories of population control, their biological basis, and applications to wildlife populations. Prereq: WLF 448 or perm. (Alt/yrs; fall only)

WLF **542 Waterfowl Management** (3 cr). Ecology and management of species using wetland habitats. Lecture-discussion periods, field labs; three days of field trips. Prereq: ecology, population dynamics, and aquatic plants; or perm. (Alt/yrs; fall only)

WLF **543 Fish and Wildlife Population Analysis** (3 cr). Quantitative analysis of fish and wildlife habitat, diet, harvest, population density, survival, and natality data; development and application of population models in fish and wildlife management. Two lec and 3 hrs of lab a wk. Prereq: WLF 448, Stat 401 and CS 112 or perm. (Alt/yrs; fall only)

WLF **544 Large Mammal Ecology** (3 cr). Readings and discussion on large mammal management and ecology. One 3-hr lec a wk; two days of field trips. Prereq: WLF 492 or perm. (Spring only)

WLF **545 Wildlife Habitat Ecology** (2 cr). Reading and discussion on synecological relationships of wildlife habitats. Two days of field trips. Prereq: WLF 492 or perm, animal and plant ecology. (Alt/yrs; fall only)

WLF **ID546 Upland Game Ecology** (2 cr). WSU NATRS 546. Ecology and management of forest and rangeland wildlife species. Three days of field trips. Prereq: perm. (Alt/yrs; fall only)

WLF **ID547 Predator-Prey Relationships** (2 cr). WSU NATRS 547. Exploration of theoretical and empirical relationships between predators and prey. Prereq: perm. (Alt/yrs; spring only)

WLF **WS548 Evolutionary Ecology** (3 cr). WSU Zool 548.

WLF **ID555 Statistical Ecology** (3 cr). Same as Stat 555. WSU Stat 555. Stochastic models in ecological work; discrete and continuous statistical distributions, birth-death processes, diffusion processes; applications in population dynamics, population genetics, ecological sampling, spatial analysis, and conservation biology. Prereq: Math 451 or perm. (Alt/yrs; spring only)

WLF **WS588** (s) **Advanced Topics in Wildlife** (1-3 cr, max 10). WSU NATRS 588.

WLF **597** (s) **Practicum** (cr arr). Prereq: perm.

WLF **598** (s) **Internship** (cr arr). Prereq: perm.

WLF **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

WLF **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "natural resources" and perm of dept.

# Women's Studies

**Sandra L. Haarsager, Coordinator (113 Admin. Bldg. 83844-3154; phone 208/885-6426).**

WmSt **201 Women, Culture, and Society: Introduction to Women's Studies** (3 cr). Survey of and introduction to the study of women's lives; thematic examination of the diversity of women's experiences in families, at work, with the law, in health care, in literature, in the media, in language; exploration of differences and similarities, including ethnicity, sexuality, class, and age.

# Zoology

**Larry J. Forney, Chair, Dept. of Biological Sciences (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280).**

Zool **500 Master's Research and Thesis** (cr arr).

Zool **501** (s) **Seminar** (cr arr). Prereq: perm.

Zool **502** (s) **Directed Study** (cr arr). Prereq: perm.

Zool **503** (s) **Workshop** (cr arr). Prereq: perm.

Zool **504** (s) **Special Topics** (cr arr). Prereq: perm.

Zool **ID505 Generation, Degeneration, and Regeneration in Nervous System** (2 cr). WSU Zool 506.

Zool **507 Readings in Neurobiology** (1 cr, max arr). Discussion of current neurobiology literature. Prereq or coreq: Biol J461/J561, Zool 505, or MedS 532.

Zool **WS510 Domestic and Exotic Animal Behavior** (2 cr). WSU V M 510/Neuro 526.

Zool **WS515 Advanced Neuroanatomy** (4 cr). WSU Neuro/V An 513.

Zool **WS528 Behavioral Mechanisms in Physiology** (3 cr). WSU Neuro/V Ph 528.

Zool **WS529 Cellular and Molecular Neurobiology** (4 cr). WSU Neuro/V Ph 529.

Zool **WS530 General and Comparative Neurophysiology** (4 cr). WSU Neuro 530.

Zool **WS534 Advanced Neurophysiology** (3 cr). WSU Neuro/V Ph 534.

Zool **WS537 Physiology and Biochemistry of Neuropeptides** (3 cr). WSU Neuro/V Ph 537.

Zool **WS543 Ion Channels** (3 cr). WSU Neuro 543.

Zool **WS544 Neurobiology of Drug Abuse** (3 cr). WSU Neuro 544.

Zool **WS558 Molecular and Cellular Reproduction** (3 cr). WSU GenCB 558. Prereq: AVS 452 or Biol J450/J550.

Zool **WS564 Brain-Endocrine Interactions** (3 cr). WSU Neuro/V Ph 564.

Zool **600 Doctoral Research and Dissertation** (cr arr).

# Faculty

**Robert A. Hoover, President; Brian L. Pitcher, Provost; Ronald E. Smelser, Chair of the Faculty Council (2001-02); Peter A. Haggart, Secretary of the Faculty.**

The date following a name indicates the beginning of service at the university.

Graduate faculty members are identified with a pound sign (#).

Faculty not located on the Moscow campus are identified with an asterisk (*).

*RICHARD D. ABBOTT, 1991, Affiliate Assistant Professor of Chemical Engineering, Moscow; B.S., 1972, Montana State; M.S., 1974, Ph.D., 1983, Idaho.

*ERNEST D. ABLES, 1973, Professor Emeritus of Wildlife Resources (Associate Dean for Academics and Continuing Education, College of Forestry, Wildlife and Range Sciences, 1974-82, 1990-93; Head, Department of Fish and Wildlife Resources, 1982-84, 1985-89, 1994-95; Acting Dean, 1984-85); B.S., 1961, Oklahoma State; M.S., 1964, Ph.D., 1968, Wisconsin. Emeritus since 1996.

*BARBARA B. ABO, 1976, Extension Professor and Ada County Extension Educator—4-H/Youth, Boise; B.S., 1972, Wisconsin; M.S., 1975, Iowa State.

TERRY P. ABRAHAM, 1984, Head, Special Collections and Archives, University Library, with rank of Professor; B.A., 1965, Washington; M.F.A., 1968, Washington State; M.L.S., 1970, Oregon.

*DAVID L. ADAMS, 1971, Professor Emeritus of Forest Resources (Head, Department of Forest Resources, 1979-87); B.S., 1959, Oklahoma State; M.F., 1961, Idaho; Ph.D., 1969, Colorado State. Emeritus since 1998.

*DONALD F. ADAMS, 1978, Affiliate Professor of Chemistry, Pullman, Wash.; B.S., 1941, M.S., 1943, Washington State.

#DOUGLAS Q. ADAMS, 1972, Professor of English (Department Chair, 1996-2000; Secretary of the Faculty, 1992-96); A.B., 1968, A.M., 1971, Ph.D., 1972, Chicago.

GAIL H. ADELE, 1974, Professor of Mathematics; A.B., 1962, M.A., 1963, Indiana; Ph.D., 1968, Michigan State.

#WUDNEH ADMASSU, 1992, Associate Professor of Chemical Engineering; Department Chair, 1998-; B.S., 1979, Oregon State; M.S., 1980, Ph.D., 1984, Idaho.

*STEPHEN B. AFFLECK, 1988, Affiliate Associate Professor of Chemical Engineering, Boise; B.S., 1960, Utah; M.S., 1973, Ph.D., 1980, Iowa State.

#AMIN AHMADZADEH, 2000, Assistant Professor of Dairy Management; B.S., 1992, Delaware Valley; M.S., 1994, Ph.D., 1998, Virginia Polytechnic.

#KATHERINE G. AIKEN, 1984, Professor of History; Department Chair, 2000-; B.A., 1972, Idaho; M.A., 1974, Oregon; Ph.D., 1980, Washington State.

VLADIMIR AIZEN, 2001, Research Professor of Geography; B.S., 1975, Tashkent Engineering Institute (Uzbekistan); M.S., 1981, Kyrghyz State (Uzbekistan); Ph.D., Russian Academy of Science (Russia).

*CAJETAN AKUJUOBI, 1998, Affiliate Associate Professor of Electrical Engineering, Pullman, Wash.; B.S., 1980, Southern Univ.; M.S., 1983, Tuskegee; M.B.A., 1987, Hampton; Ph.D., 1995, George Mason.

*RICHARD K. ALBANO, 1991, Affiliate Assistant Professor of Physics, Idaho Falls; B.S., 1976, Idaho State; M.S., 1980, Alaska; Ph.D., 1989, California (Los Angeles).

CAROL PADGHAM ALBRECHT, 1989, Associate Professor of Music (oboe, music history); B.A., 1974, M.Mus., 1980, North Texas State.

*ADAM K. ALEKSANDER, 2000, Affiliate Associate Professor of Mechanical Engineering, Boise; B.S., 1972, California State (San Jose); M.Engr., 1980, Colorado; Ph.D., 1995, Texas A&M.

#*R. SAMUEL ALESSI, 2001, Affiliate Assistant Professor of Mechanical Engineering, Idaho Falls; M.S., 1983, Ph.D., 1989, North Dakota State.

#GARY C. ALEXANDER, 1992, Associate Professor of Educational Administration; B.S., 1974, M.S., 1975, M.S., 1977, Bemidji State; Ph.D., 1991, Minnesota (Minneapolis).

*ROBERT C. ALLDAFFER, 1955, Extension Professor Emeritus; B.S.Ag., 1950, Idaho. Emeritus since 1983.

*CHARLES A. ALLEN, 1986, Affiliate Professor of Chemistry, Idaho Falls; B.S., 1962, Ottawa (Kansas); Ph.D., 1969, Oregon State.

#*RICHARD G. ALLEN, 1998, Professor of Biological and Agricultural Engineering and of Civil Engineering, Kimberly; B.S., 1974, Iowa State; M.S., 1977, Ph.D., 1984, Idaho.

*STEWART D. ALLEN, 1987, Affiliate Assistant Professor of Resource Recreation and Tourism, Bend, Oreg.; B.A., 1976, Utah; M.A., 1978, Claremont Graduate School; Ph.D., 1980, Montana.

*CHRIS M. ALLISON, 1992, Affiliate Assistant Professor of Mechanical Engineering, Idaho Falls; B.S.M.E., 1972, M.S.M.E., 1973, Wyoming; Ph.D., 1987, Idaho.

*JUAN M. ALVAREZ, 2001, Assistant Professor of Entomology, Aberdeen; B.S., 1991, Universidad Nactional (Columbia); M.S., 1996, Massachusetts; Ph.D., 2000, Florida).

#JAMES ALVES-FOSS, 1991, Associate Professor of Computer Science; B.S., 1987; M.S., 1989, Ph.D., 1991, California (Davis).

DON A. AMOS, 1963, Business and Real Estate Manager Emeritus; B.S.Bus., 1952, Idaho. Emeritus since 1991.

*DOYLE E. ANDEREGG, 1967, Professor of Biology and Associate Dean Emeritus (Associate Dean, College of Letters and Science, 1989-99; Management Information Specialist; Assistant Dean, College of Letters and Science, 1981-89; Head, Department of Biological Sciences, 1967-75); B.Sc., 1952, M.S., 1957, Ph.D., 1959, Ohio State. Emeritus since 1999.

*BRUCE C. ANDERSON, 1978, Professor of Pathology, Caldwell; B.S., 1965, D.V.M., 1965, Ph.D., 1977, California (Davis).

CLIFTON E. ANDERSON, 1972, Extension Professor Emeritus of Agricultural Information; B.S., 1947, Wisconsin; M.A., 1954, California (Berkeley). Emeritus since 1997.

#ERIK T. ANDERSON, 1987, Associate Extension Professor of Agricultural Information; Director of Agricultural Communication; B.S., 1983, Idaho; M.A., 1985, Wisconsin (Madison).

*GUY R. ANDERSON, 1946, Professor of Bacteriology and Director of the WAMI Medical Education Program Emeritus; B.S.Ag., 1942, M.S.Ag., 1947, Idaho; Ph.D., 1956, Washington State. Emeritus since 1984.

*JAMES H. ANDERSON, 1989, Affiliate Professor of Geology, Fairbanks, Alaska; B.S., 1964, Washington (Seattle); Ph.D., 1970, Michigan State.

*JAMES L. ANDERSON, 1998, Affiliate Assistant Professor of Nuclear Engineering, Idaho Falls; B.S., 1973, M.S., 1974, Oregon State.

JANICE CAPEL ANDERSON, 1985, Professor of Philosophy and Religious Studies; B.A., 1974, Macalester; M.A., 1975, Ph.D., 1985, Chicago.

MARK D. ANDERSON, 1982, Professor of Law; B.A., 1973, Macalester; J.D., 1977, Chicago.

#MICHAEL J. ANDERSON, 1989, Associate Professor of Mechanical Engineering; B.S.M.E., 1983, Oregon State; M.S.M.E., 1987, Ph.D., 1989, Washington State.

#TONY J. ANDERSON, 1995, Associate Professor of Mechanical Engineering; B.S., 1983, Utah State; M.S., 1987, Arizona State; Ph.D., 1993, Virginia Polytechnic.

*KARL-ERIK ANDREASSON, 1997, Affiliate Assistant Professor of Adult, Counselor, and Technology Education, Athol; B.A., 1972, Umea (Sweden); Ph.D., 1992, Temple.

*GRAHAM ANDREWS, 1987, Affiliate Assistant Professor of Chemical Engineering, Idaho Falls; B.S., 1969, Imperial College (London); M.S., 1975, Ph.D., 1979, Syracuse.

*WILLIAM A. APEL, 1993, Affiliate Professor of Microbiology, Molecular Biology and Biochemistry, Idaho Falls; B.A., 1973, M.S., 1976, Ph.D., 1978, Ohio State.

#AHMED A. ARAJI, 1968, Professor of Agricultural Economics (production economics); Agricultural Economist; B.Sc., 1962, M.Sc., 1964, Nebraska; Ph.D., 1968, Missouri.

*RODNEY E. ARBON, 1997, Affiliate Assistant Professor of Chemistry, Idaho Falls; B.S., 1988, B.A., 1988, Idaho State; M.S., 1990, Ph.D., 1995, Montana State.

*ELDON D. ARCHAMBAULT, 1971, Professor Emeritus of Education; B.A., 1945, Northern Iowa; M.A., 1948, Ph.D., 1967, Iowa. Emeritus since 1983.

TERI A. ARION, 2001, Catalog Librarian with rank of Assistant Professor; B.A., 1991, New Mexico; M.L.S., 1999, Wisconsin (Milwaukee).

#DIANE M. ARMPRIEST, 2001, Assistant Professor of Architecture; B.S., 1972, B.L.Arch., 1983, M.L.Arch., 1984, M.Arch., 1997, Oregon.

*JILL E. ARMSTRONG, 1989, Affiliate Associate Professor of Family and Consumer Sciences, Pullman, Wash.; B.S., 1978, M.S., 1981, North Carolina State; Ph.D., 1985, Rhode Island.

*TERRY R. ARMSTRONG, 1969, Professor of Education and Adjunct Professor of Resource Recreation and Tourism Emeritus (Coordinator of Student Services and Executive Assistant to the President, 1978-89); B.S., 1958, Southern Mississippi; M.Nat.Sc., 1964, Ed.D., 1969, Idaho. Emeritus since 1995.

*RONALD C. ARNETT, 1996, Affiliate Assistant Professor of Geology, Twin Falls; B.E.S., 1968, Brigham Young; M.S., 1986, Washington (Seattle).

ROGER A. ARNZEN, 2001; Professor of Military Science; Department Head 2001-; B.S., 1980 US Military Academy; M.S., 1995, Central Michigan.

#ERIC ASA, 2001, Assistant Professor of Mining Engineering; B.S., 1984, Science and Technology (Ghana); M.S., 1992, M.Eng., 1994, Colorado School of Mines; Ph.D., Alberta (Canada).

#TOURAJ ASSEFI, 1995, Professor of Electrical Engineering; Director of the Microelectronics Research Center, 1995-; B.A., 1965, Hofstra; M.A., 1967, M.S., 1969, Ph.D., 1973, Southern California.

D. ERIC ASTON, 2001, Assistant Professor of Chemical Engineering; B.S., 1995, Idaho; M.S., 2000, Ph.D., 2001, Washington.

*CARTER T. ATKINSON, 1997, Affiliate Associate Professor of Fish and Wildlife Resources, Hawaii; B.S., 1976, Dickinson; M.S., 1981, Louisiana State; Ph.D., 1985, Florida.

#*DAVID A. ATKINSON, 1996, Affiliate Assistant Professor of Chemistry, Idaho Falls; B.S., 1986, Pennsylvania State; M.S., Ph.D., 1992, Washington State.

#DAVID H. ATKINSON, 1989, Associate Professor of Electrical Engineering; B.A., 1977, Whitman; B.S.E.E., 1980, Washington State; M.S., 1981, Stanford; Ph.D., 1989, Washington State.

*NANCY I. ATKINSON, 1943, Catalog Librarian Emerita with rank of Professor (Head, Catalog Department, 1943-72); A.B., 1935, A.B.L.S., 1936, Michigan. Emerita since 1972.

#STEVEN N. AUSTAD, 1993, Professor of Zoology; B.A., 1969, California (Los Angeles); B.A., 1976, California State (Northridge); Ph.D., 1981, Purdue.

#GARY AUSTIN, 1991, Associate Professor of Landscape Architecture; B.A., 1977, California State (Fullerton); M.L.A., 1981, California State Polytechnic.

*JAMES H. AUSTIN, 1998, Affiliate Professor of Philosophy, Colorado; B.A., 1944, Brown; M.D., 1948, Harvard Medical School.

*JASPER R. AVERY, 1959, Professor Emeritus of Mechanical Engineering; B.S.M.E., 1957, Idaho; P.E. Emeritus since 1999.

#RULA Z. AWWAD-RAFFERTY, 1998, Assistant Professor of Interior Design; ID Program Coordinator, 1999-; B.S., 1985, Yarmouk; M.Arch., 1990, Idaho; Ph.D., 1995, Washington State.

#GINNA M. BABCOCK, 1994, Associate Professor of Sociology; B.S., 1987, Idaho; M.A., 1989, Ph.D., 1995, Washington State.

*VALDAN BABOVIC, 1997, Affiliate Assistant Professor of Civil Egineering, Horsholm, Denmark; B.S., 1986, Sarajevo; M.S., 1991, Ph.D., 1995, International Institute for Infrastructure (Netherlands).

J. FRANKLIN BAILEY, 1984, Adjunct Instructor in Metallurgical and Mining Engineering; Supervisor, Electron Microscopy Center; B.S., 1968, M.S., 1971, Texas A&M.

#JEFFREY J. BAILEY, 1991, Associate Professor of Business; Adjunct Associate Professor of ETHICS, Center for ETHICS; B.S., 1987, Colorado State; M.A., 1990, Ph.D., 1991, Akron.

*EVERETT M. BAILY, 1978, Affiliate Professor of Electrical Engineering, Hewlett-Packard Co., Boise; B.S.E.E., 1961, M.S.E.E., 1964, Idaho; Ph.D., 1968, Stanford.

DENNIS W. BAIRD, 1974, Social Science Librarian with rank of Professor; B.A., 1966, Hawaii; M.A., 1970, Michigan State; M.L.S., 1970, Michigan.

LYNN N. BAIRD, 1974, Head, Access Services, University Library, with rank of Professor; B.A., 1972, Pacific (Stockton, Calif.); M.L.S., 1974, Oregon; M.P.A., 1979, Idaho.

JUDITH A. BAKER, 1991, Lecturer in Foreign Languages; B.A., 1964, Oregon State; M.A., 1969, Washington State.

*LESLIE L. BAKER, 2000, Affiliate Assistant Professor of Geological Sciences, Billings, Mont.; B.A., 1990, Rice; Sc.M., 1992, Ph.D., 1996, Brown.

#*R. JACOB BAKER, 1993, Affiliate Assistant Professor of Electrical Engineering, Boise; B.S.E.E., 1986, M.S.E.E., 1988, Nevada (Las Vegas); Ph.D., 1993, Nevada (Reno).

*EUGENE M. BALDECK, 1981, Affiliate Clinical Professor of Medical Science, Lewiston; B.S., 1955, Idaho; M.D., 1959, Washington.

*DONALD C. BALDRIDGE, 1969, Professor Emeritus of History; B.A., 1960, Idaho; Ph.D., 1971, Arizona. Emeritus since 1987.

*JO A. BALDRIDGE, 1972, Associate Registrar Emerita; B.A., 1968, Southern State (Arkansas); M.A., 1971, Idaho. Emerita since 1991.

*RONALD J. BALDUS, 1981, Affiliate Professor of Chemical Engineering, Camas, Wash.; B.S., 1974, M.S., 1975, Ph.D., 1979, Idaho.

*FLORENCE A. BALDWIN, 1998, Affiliate Assistant Professor of Mechanical Engineering, Mead, Wash.; B.S., 1979, Florida; M.S., 1982, Ph.D., 1994, Colorado School of Mines.

*SCOTT BANDOROFF, 2000, Affiliate Assistant Professor of Resource Recreation and Tourism, Bend, Oregon; B.A., 1981, Virginia; Ph.D., 1992, South Carolina.

#ANNA BANKS, 1989, Associate Professor of Communication; Associate Director, Honors Program, 1998-; B.A., 1983, Nottingham (England); M.A., 1986, California (Santa Barbara); Ph.D., 1989, Southern California (Los Angeles).

#STEPHEN P. BANKS, 1989, Professor of Communication; B.A., 1970, Washington (Seattle); M.A., 1983, Ph.D., 1987, Southern California (Los Angeles).

*JOHN D. BARANOWSKI, 1996, Affiliate Associate Professor of Food Science and Toxicology, Selah, Wash.; B.S., 1976, California (Davis); M.S., 1980, Ph.D., 1982, Washington State.

#DAVID S. BARBER, 1968, Associate Professor of English; Department Chair, 2000-; A.B., 1962, Hamilton; M.A., 1963, Ph.D., 1968, Michigan.

*JAMES R. BARBORAK, 1991, Affiliate Assistant Professor of Resource Recreation and Tourism, Heredia, Costa Rica; B.S., 1975, M.S., 1976, Ohio State.

#JAMES D. BARBOUR, 1996, Assistant Professor of Entomology; B.S., 1984, California (Davis); M.S., 1987, Ph.D., 1992, North Carolina State.

ALICE POPE BARBUT, 1978, Adjunct Instructor in Sociology; Director, Cooperative Education; B.A., 1981, M.B.A., 1984, Washington (Seattle).

*EROL BARBUT, 1967, Professor Emeritus of Mathematics (Department Chair, 1994-98); B.A., 1963, California (Berkeley); M.A., 1965, Ph.D., 1967, California (Riverside). Emeritus since 1999.

*DOROTHY T. BARNES, 1969, Professor Emerita of Music; B.Mus., 1948, M.Mus., 1964, Idaho. Emerita since 1999.

#KIM M. BARNES, 2000, Assistant Professor of English; B.A., 1983, Lewis-Clark; M.A., 1986, Washington State; M.F.A., 1995, Montana.

*WILLIAM P. BARNES, 1957, Professor Emeritus of Mechanical Engineering (Department Chair, 1974-80); B.S.M.E., 1947, Idaho; M.M.E., 1949, Yale; Ph.D., 1973, Illinois; P.E. Emeritus since 1987.

#*DANNY L. BARNEY, 1988, Extension Professor of Horticulture; Superintendent of the Sandpoint Research and Extension Center, Sandpoint; B.S., 1975, United States Coast Guard Academy; M.S., 1984, Brigham Young; Ph.D., 1987, Cornell.

#ROBERT M. BARON, 1974, Professor of Architecture; Department Chair, 1990-93, 1999-; B.Arch., 1972, Oregon; M.Arch., 1973, Washington (Seattle); M.S., 1990, Pennsylvania; R.A.

*WILLIAM F. BARR, 1947, Professor of Entomology and Department Head Emeritus (Head, Department of Entomology, 1978-82); M.S., 1947, Ph.D., 1950, California (Berkeley). Emeritus since 1982.

*WARREN BARRASH, 1991, Affiliate Professor of Geology and Geological Engineering, Boise; B.A., 1970, Dartmouth; M.S., 1978, Ph.D., 1986, Idaho.

*DEBONNY L. BARSKY-SHOAF, 1988, Affiliate Assistant Professor of Microbiology, Molecular Biology and Biochemistry, Idaho Falls; B.S., 1973, Pennsylvania State; Ph.D., 1981, Pittsburg School of Medicine.

*WYLLA D. BARSNESS, 1990, Affiliate Professor of Adult, Counselor, and Technology Education, Boise; A.B., 1949, William Jewell College; M.S., 1959, Montana State; Ph.D., 1969, Minnesota.

*CHARLES G. BARTELL, 1950, Professor Emeritus of Architecture; B.Arch., 1949, Washington (Seattle); M.S.Arch., 1950, Columbia. Emeritus since 1973.

*DAVID L. BARTON, 1992, Associate Extension Professor and Latah County Extension Educator (Agriculture), Moscow; B.S., 1988, M.S., 1991, Idaho.

*ELBERT M. BARTON, 1960, Professor of Naval Science and Director of Personnel Services Emeritus; B.S., 1942, Oklahoma State; M.S., 1963, Idaho. Emeritus since 1981.

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| | | |
|---|---|---|
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